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DISCUSSION

OF THE

QUESTION OF

RAILWAYS OR WATERWAYS

FOR INDIA,

FROM THE

MADRAS DAILY TIMES

AND THE

FRIEND OF INDIA.

MADRAS:
PRINTED AT THE SCOTTISH PRESS,
BY GRAVES AND CO.
1860.

PREFACE.

In the Papers now reprinted almost all the common notions about Railways in India are brought forward by a Correspondent of the *Madras Times*, signing himself P——. They have been carefully examined and replied to in a series of Articles in the same journal.

In this controversy the object of P. is to keep the attention of readers immoveably fixed upon Railways, and prevent if he possibly can a comparison between them and Waterways. The great object of his opponent is to put in a strong light the comparative effects of the two kinds of works in India.

The latter argues that what is in vain attempted to be effected by Railways costing from 1 to 2 Lacs a mile, can really be effected by Waterways, which in reality cost nothing as Communications, the Interest, &c. being paid over and over again by their operation in Irrigating the land; so that all that the Railways pretend to accomplish at so enormous an outlay of Capital, is actually thrown into the bargain as a trifle in Hydraulic Works, which in providing for cheap produce have already made enormous returns for the outlay.

The vulgar idea is that we have no alternative, that we must either have common roads or high-speed Railways. The object of the advocates for the latter is to keep up this notion as long as possible, by keeping Waterways entirely out of sight.

The object of P.'s opponent is to show that Railways—

1st. Cannot carry either Passengers or goods at the cost absolutely essential to the progress of the country.

2nd. That they are incapable of carrying the *quantities*, that ought to be carried on main lines in India.

3rd. That the lines now in progress certainly will not nearly pay the Interest of the Capital, and consequently that they will load an insolvent country with a very heavy additional annual burthen of from 1 to 2 millions.

4th. That wherever constructed excepting when parallel to natural lines of water transit, *they will seal up that tract of country for an indefinite time from really cheap transit either for Goods or Passengers.*

5th. That those tracts will thus be left totally incapable of competing with the districts which by means of water are provided, with cheap produce and cheap transit, and will be excluded from all the markets foreign or domestic to which the latter have access.

6th. That Railways cannot water the land, and so afford cheap produce.

7th. That it is now practically acknowledged that high speeds such as 30 or 40 miles an hour are out of the question in India, for now that the expense of high-speed Railways has been incurred, they are all worked at from 12 to 20 miles an hour only.

8th. *That the palpable failure of the Railways to yield return for the Capital, is at this moment the grand hindrance to the application of British Capital and British enterprize to India.*

On the other hand it is shown that Waterways—

1st. In fact cost nothing as communications, because their cost is paid over and over again by the Irrigation from them.

2nd. That they can carry both goods and Passengers at such very low charges that they will fully meet the wants of the country, *in fact almost annihilating the cost of transit.*

3rd. That they *can* carry the required *quantities*, several million tons a year where necessary.

4th. That they can carry at ample speed for every purpose required in India; in fact, if it were necessary, at as high speeds as those at which the Railways are now worked. But indeed a speed above 10 or 12 miles an hour is in the present state of India a matter of almost perfect indifference, and not to be named in comparison of *cheapness.*

5th. That while conveying at such rates and speeds, their value for Irrigation is so great as to allow of direct returns of 20 or 30 per cent. if required, while their indirect returns will be 100 or 200 per cent.

6th. That thus instead of being an additional burthen to the finances, they will, if carried out through only a small portion of the country, effectually relieve the finances, and provide ample means for all kinds of improvements in the management of India.

7th. *That by yielding such ample direct returns, they will powerfully and effectually draw British Capital and enterprize to India.*

8th. That so strong is the pressure in favour of water carriage that two of the principal Railway Companies are actually employing a portion of their Capital in constructing magnificent Steam Flotillas for the Indus and the Ganges; the Chairman of the Calcutta Company assuring the shareholders that the Capital so employed will yield 100 per cent., or 13 times the *nominal* profits on the most productive piece of Railway in India.

Excepting a partial discussion of this question, (upon which more than any other the material welfare of India depends), by Colonels Baker and Cotton, this is the first time that the arguments of the Railway Advocates and the notions commonly held by people, have been openly brought forward, so as to afford an opportunity for answering them directly, and it is confidently hoped that this publication will help materially to show to many on which side the truth lies.

It must be remembered that Railways were entered upon without the least discussion; not one word was allowed to be heard against them, and we now see the inevitable consequences of thus rushing blindly into a vast scheme, without a real and honest examination of the subject.

In the mean time ten years and 20 millions have been lost, and far worse, for they have been used in raising up a terrible additional barrier against a system of Works that will really develope the almost unbounded resources of this country.

The establishment of Steam Flotillas by the Railway Companies themselves, the eagerness with which the money is paid into the Treasury for the Irrigation Company (nearly ten times as much as has been called for), the present price of their shares, three times the sum paid, the pressing demands upon the Government to allow of other extensive Irrigation projects being carried out, and many other things clearly show that to a very great extent the Public are beginning to understand the state of the case in this question, and the present papers can scarcely fail to assist the Public in their consideration of it.

A statistical table showing the progress of the only district in India, where a system of combined Irrigation and Navigation has been carried out to any extent, is appended. Certainly nothing approaching to the progress of this district has ever yet been seen in any other district of India. If every other district showed an increase of the Revenue of 64 per cent., of exports sevenfold, of internal traffic probably 20 or 30 fold, of the change from a great export of bullion, to as large an import of it: we might certainly begin to think the management of the country successful. Let these results be compared with the effects of 30 or 40 miles of Railway which might have been laid for the same money. Let returns be called for of the increase of Revenue, of produce, of internal traffic, of exports, and of Bullion in North Arcot, in consequence of about 600,000£ having been spent on the line of Railway passing through it; the contrast would be ludicrous, to any body but the poor inhabitants of the district and to all who have to pay the interest of the money. It is notorious that no effect worth mentioning has been produced upon the district in any one of these respects, while it has the new hindrance of having to contend in the Madras Market with the cheap produce of Rajahmundry.

And yet in the latter district the system of works has not been completed, neither has any thing like the full water rate been yet levied on the lands that have been already watered. When the works are completed and a very light water rate levied on all the lands, the increase of Revenue will be three times what it is at present. Had these works been executed by a private Company they might with the greatest ease have received a dividend of 20 or 30 per cent. per annum; leaving to the landowner at the same time by far the greater portion of the benefits from the works. The increase of produce cannot be less than 200 per cent. upon the Capital, and this is besides the effects of the water carriage, on 1000 miles of Canal and River.

HOW INDIAN RAILWAYS PAY.

(Article from the Friend of India, November 17, 1859.)

Captain Hodgson, in charge of the office of Government Consulting Engineer, has published an analysis of the revenue and traffic of the three Indian Railways during the latter half of the year 1858. He has no theories to support, no prejudices to lead him astray; or if he has any, a casual reader of his analysis would say he is decidedly hard on Railways, and anxious, rather than not, to cut down their profits to the smallest sum. In the teeth of the Chief Engineer, he refuses to consider as a charge against capital a large item of expenditure for an experiment in maintenance of way on the East Indian Railway, although the whole line to Delhi will derive benefit from the trial. As statistics, and the conclusions drawn from them, are proverbially susceptible of colouring, and it is certainly not the interest of a Government Engineer to swell the Revenue account at the expense of the Capital, Captain Hodgson's deductions might be tested before being confidently received. They refer also to a period since which nearly a year has elapsed, reforms have been made, the fares have been lowered, the lines have been extended, the traffic has been largely increased and the original expenditure spread over a larger area. We accept them therefore not as affording materials for a fair picture of what Indian Railways are, or for an idea as to what they will become, but as historic facts, as a statement of what they were from July to December 1858.

During the entire year the East Indian Railway carried 1,172,852 passengers, or 8,952 per mile. The gross earnings per train mile were Rs. 3-14-1, and the working expenses Rs. 1-15-1. The profits were 49·9 per cent. and the expenses 50·1 per cent. of the whole earnings. Reckoning the outlay on the opened line at a million and a half sterling, the profit on the Capital is 6¼ per cent. In the previous half year it was 6½ per cent.

In the corresponding half year of 1857 the per-centage of expenses to revenue was 38·7; it has risen to 50·1. While the train mileage increased by 35·9, the passenger traffic increased by only 13·2, but the Goods Traffic by 40·8. The decrease in the gross earnings is thus 8·4 per cent. The gratifying feature in these results is the increase of Goods traffic 2·6 per cent. above the mileage increase. The reiterated statement of those who are not content with advocating canals but must always oppose Railways, that however satisfactory the revenue may be at the outset, the increase of Traffic will not be proportioned to the extension of the line, is thus confuted in what will ultimately prove the most remunerative part of the traffic in India. That there should have been a proportionate decrease of 11·7 per cent. in the passenger traffic, is we believe temporary, is not true of the present year, and is accounted for by the fact of the opening of the line from Burdwan to a mere Bengallee village, which required a disproportionate increase to the establishments, and could attract only a few passengers. This must necessarily be the case till a great terminus like Rajmahal is reached.

The Great Indian Peninsula Railway was open for 68 miles on the Concan and 103¾ on the Deccan line, or a total of 171¾. As 64 of these miles were open for only a fortnight, 135¾ is assumed as the standard. Unlike the E. I. line the returns from Passenger traffic are most satisfactory, and the receipts from Goods, though showing an improvement on previous periods, still disappointing. The expenses amount to 43·35 on the receipts, a result which is creditable to the G. I. P Railway as compared with the E. I. Railway in working. But the capital expended on the former is so much greater that the net per-centage is £4-5-10 against £6¼ on the latter. The Passenger income is Rs. 4-14-6 per train per mile against 3-13-4 in 1857; the Goods traffic only Rs. 2-9-11. The high rates for goods are alone to blame for this result, and their recent reduction is still insufficient.

When we look at the revenue of the Madras Railway we cease to wonder that the men who are the greatest opponents of Railways belong to that Presidency. It is the worst of the three. Open for 96 miles, worked as cheaply as the other

Indian lines, from its high rates it has not succeeded in securing much traffic. Its expenses are accordingly 66·44 per cent. of the whole revenue, but there is a slight improvement on previous years, which raises the profits to nearly 3½ per cent. Looking at the three Railways we have the following results per mile for the half year :—

	Passengers.	Maunds of Goods.	Total Receipts.	Total Expenses.	Profits per cent.
E. I. R.	4,515	20,834	Rs. 7,172	Rs. 3,593	6¼
G. I. P.,	4,305	14,112	4,884	2,117	4⅜
M. R.,	1,459	8,605	2,473	1,642	3⅜

During the Half Year, the E. I. Railway carried 591,578 passengers, the G. I. P. Railway 553,816 and the Madras Railway 140,110, distributed thus :

	3rd Class.	2nd Class.	1st Class.
E. I. R.	555,082	28,051	8,445
G. I. P. R.	505,138	41,708	6,970
M. R.	133,747	5,965	398

This gives a total of 2,571,008 passengers carried during the year.

When we compare these results with the figures published by the Board of Trade on English Railways for 1858, we have reason to congratulate ourselves on the larger returns of the Indian Lines. The average rate of dividend on the whole of the ordinary share capital in England was 3·06, somewhat less than the yield of even the Madras line. Even the interest on preference capital and loan was only 4·63, or little more than yield of the G. I. P. line, and two per cent. below the East Indian Line. In round numbers 140,000,000 passengers were conveyed, but in proportion to the mileage, the number of Passengers in the E. I. Railway is greater than in Ireland, nearly equal to that of Scotland and about three-fifths that of England. The average cost of the construction of the English lines has been per mile £39,275, of the American £8,275, and of the G. I. P. Railway £8,253. The working expenses on the Indian lines are less than on any other, and every new extension, every new reduction of the rates, increases the receipts.

These results, we submit, are encouraging in themselves. They point also to a future for Indian Railways of which men do not dream. As yet they are single lines, without even roads as feeders;

as yet they have not reached their great termini, but each ends in a swamp or a village; as yet their fares for third class passengers, and for goods, are disproportionately high. When the Overland traffic, and the produce of the Hills and well-watered vallies, are borne along between Madras and Beypore; when Central India and the Assigned Districts of Hyderabad pour their vast cotton wealth into Bombay; when the goods of Manchester are borne into the interior,' and the riches of the doabs and deltas of the Indus and the Ganges, and the tea of the Himalaya slopes are carried down to Kurrachee and Calcutta; and when the dense population of these vallies, ever on the move, is attracted by fares lower than those of their own boats, Indian railways will yield almost fabulous dividends. The one secret which will accomplish this, which has made the East Indian Railway —only partially aware of it—eclipse the others, and which only one English line has yet perceived, is cheap fares, cheap rates.

(*Article from the Madras Times, December* 15.)

The question of communication is such a fundamental one to India that it cannot be too fully discussed at every step. In matters of less importance we are tolerant of crotchets, hobbies, and crazes, but this is a matter on which the future prosperity of the country depends in too great a degree to allow erroneous notions regarding it to pass without notice. The results of a mistaken policy in regard to it who can estimate?

In his issue of the 17th ultimo the *Friend of India* has a paper on Railways, in which he reviews Captain Hodgson's analysis of the revenue and traffic of the three Indian Railways, during the latter half of the year 1858. We labor under the disadvantage of not having seen Captain Hodgson's report and must therefore confine ourselves to the points touched upon by the *Friend*, with the aid of the information contained in the half yearly reports of the company just published in England.

The first point that deserves attention is our contemporary's remark that "the gratifying feature in the results (given by Captain Hodgson) is the increase of goods traffic 2·6 per cent. above the mileage increase. The reiterated statement of those who are not content with advocating canals, but must always oppose Railways, that however satisfactory the revenue may be at the outset, the increase of traffic will not be proportioned to the extension of the line, is thus confuted in what will ultimately prove the most, remunerative part of the traffic in India."

As this is now perhaps the main refuge of those who are still endeavouring to prop up the Railway cause, we must endeavour to examine it carefully.

A priori one would suppose it would be impossible to find any one hardy enough to assert that the average traffic of a line of Railway penetrating the poor districts of India would exceed that of the first 100 miles out of the Capitals. Who can imagine, for instance, that the traffic, on a line 300 miles from a Capital will so nearly equal that on the first 100, as to raise the average of the whole? Of course a very short line even adjoining the Capital will not have a very great traffic in goods, and up to a certain distance, the average traffic will increase. On the Calcutta line, the insignificant increase of 2½ per cent. shows that on that line, only extending 120 miles in one direction, the average traffic has all but reached its maximum, and making it almost certain that another 50 miles will reduce it. But of this rapid diminution of traffic as the distance increases from the most wealthy and populous parts of the country, we have abundant proof in the statements of traffic now published.

On the Calcutta line ½ year's gross receipts per mile.	Rs.	7,200
On the Bombay line calculated from 4 weeks towards the end of 1858..	,,	5,250
Do. same weeks (the last published), in 1859.......	,,	4,900
On the Madras line..	,,	2,500
On the Allahabad line, calculated from the average of 4 months, as given in the last Report,.........	,,	1,500

What are we to think will be the receipts on 100 miles away from the great cities, when we find how rapidly they diminish even on these 1st class lines? If the traffic between Allahabad and Cawnpore and Lucknow, is little more than 1-5th of that nearer Calcutta what will it be in other wretchedly poor parts of the country, 200 or 300 miles from a capital. For instance between Sholapoor and Cuddapah, a distance of 350 miles, without a single wealthy town any where near it, or between Coimbatore and Vaniumbady 200 miles, through a narrow strip of very poor country with a broad track of uninhabited, feverish, jungle on each side, we cannot expect that the traffic will be 1-5th of that adjoining Allahabad, or 300 rupees a mile, 1-24th of that near Calcutta.

The Bombay line already shows, a considerable diminution of average, though the returns only include a short distance east of Poonah.

It is probable that for 10 Passengers that go a few miles out of and into Calcutta and its populous suburbs on the Railway there will not be above 1 or 2 passing between the Burdwan line and Rajmahal. There can be little doubt from these actual results, that the traffic on by far the greater portion of the Railways now laying will not pay the station expenses, and that there will be a great loss in working the lines. It might have been supposed that so palpable a matter would have only required a moment's consideration, but surely a diminution of traffic, from that near Calcutta of 7,200, to that near Allahabad of 1,500, the lowest a line of 1st importance, is proof enough of what will be the case in the interior, that is in all the lines with the exception of the 1st 100 miles out of a Capital.

We now come to the *Friend's* statement of profits. On the Calcutta line, he states it to be 6¼ per cent., on a capital of 150 lacs, for 140 miles, or at the rate of 1,06,000 Rs. a mile. But this statement is totally fallacious. In the first place, the Report published at Home says, that the average cost of the Railway to Delhi will be 1,45,000 Rs. a mile for a single truck, and 1,75,000 Rs. for a double one, and this is still in a great measure estimate. And to this must be added the accumulation of interest, which on the Bombay line is stated to be 7,60,000 on an expenditure up to this time of £4,400,000 or 16 per cent. Adding in the same proportion for the Calcutta line, Rs. 28,000, will make the total capital on an average Rs. 203,000, a mile for a double line and 168,000 for a single one. Where the *Friend* gets his Rs. 105,000 it is hard to tell, but it is quite evident that the fair way of calculating is on the probable average cost as given by the Directors in their report. We should observe also that the Directors say this allows for "only £2000 a mile, for rolling stock;" probably such a traffic as is necessary to pay interest, will require much more than this, and as estimates are so generally defective, we may certainly assert that the completed double line with rolling stock sufficient for a paying traffic, will not cost less than Rs. 240,000 a mile, with double rails, or 210,000 with a single line; and 225,000 for a line half double and half single. This is abundantly sufficient to show that on the ground of capital alone, the *Friend's* calculation of Profits is totally fallacious. Even without including the accumulated interest as capital (and if we don't what is to become of it), and taking only the estimated cost as now given by the Directors, at Rs. 160,000, (supposing half the line single and half double), with a small rolling stock, the capital is half as much again as is allowed by the *Friend*, reducing the nominal profits from 6¼ per cent. to 4. Even were the cost of the part now opened only Rs. 105,000, it would be obviously fallacious to calculate from that; which would be taking the traffic on by far the most productive part of the whole line, with the capital as far below the average of the whole. If we take the average cost at what it will probably be, including accumulations of interest, viz. 225,000 rupees, the present nominal profits are reduced from 6¼ per cent. to 3.

But further we have another distinct and complete fallacy in taking the whole of the present excess of receipts over expenditure as profits. Every body knows that this is absurd. What would become of a shipowner who spent the whole of his net receipts from the first five years of a new ship, as if they were real profits, and at the end of the 5 years found himself owner of a vessel totally unseaworthy without a shilling to repair her? This was certainly just what the Railway Companies did at home, and thus it is that their first 10 per cent. has gradually fallen to 5, 2, or nothing. The Calcutta Railway cannot yet have a worn-out waggon on it, and not only have they not yet felt the pressure of the demand for replacing, but they have not yet had to meet calls for ordinary heavy repairs, as all is comparatively new. We cannot help here remarking on the fact of the Government Engineers, no doubt thoughtlessly, being in fact parties to the deception produced by the publication of the Railway accounts in this form, thus lending their sanction to the delusion that the present net receipts are *bonâ fide* profits, which nobody can possibly imagine. We suppose, from all the information we can obtain, we cannot possibly allow less than 2 or 3 per cent. for repairs and depreciation of property; and the accounts of the Calcutta line would thus really stand probably something like this:—

	Rs.
Average cost of line to Delhi, half single and half double..	1,60,000
Add for accumulations of interest at 16 per cent...	25,000
Capital per mile...	1,85,000
Net receipts per annum near Calcutta, calculated from the last half year................................	7,160
or per cent...	4
Deduct for depreciation, and repairs..................	2½
Actual profits on the most productive 140 miles in India..	1½
Under the Allahabad line the gross receipts per annum, calculated from the last 4 months......	3,000
Net returns at 50 per cent............................	1,500
or per cent...	⅘
And deducting 2½ per cent., for depreciation, leaves a *loss* of..	1⅘

We have no doubt that the traffic will continue to increase, but there is not the smallest probability, that it will increase for many years to come sufficiently to make up for the present deficiency of returns. In fact how can it be imagined for a moment that when in England, with its vast and wealthy population, Railways which cost on an average 40,000£ a mile, only pay on an average 4 per cent., (and there is no doubt that a part of this is still fictitious), so poor a country as India, can possibly pay 5 per cent. for a Railway even though it costs less than half what it would there. It must be remembered also that the prices paid by the Passengers here, are only about ¼ or ⅕ what are paid at home.

If we analyze the accounts of the Bombay line we find them also quite fallacious, with this addition, that in them the trifling cost of the Bhore Ghaut, at least 80 lacs, is left out.

In the *Friend's* statement of profits he gives net receipts per annum Rupees 2770, and the per centage of profit from this, 4 3-8ths ; this would make the captial Rupees 126,000 a mile. But in another place he states the cost at Rupees 82,000. Supposing the latter to be the correct one, we have

Cost per mile................................	Rs.	82,000
Add for interest 16 per cent..........	,,	13,000
		95,000
Do of 135 miles as given in the *Friend's* calculations................................	Lacs.	128
Add for Bhore Ghaut....................	,,	80
Cost of 140 miles		208
Or per mile..................................	Rupees	150,000
Net receipts per annum....................	,,	5,540
or per cent,................................	,,	3¾
Deduct for depreciation....................	,,	2½
Actual profit..................................	,,	1¼

If we divide the cost of the Bhore Ghaut over a greater distance, we must then allow for a greatly reduced average traffic, as we have before shown. And we have no doubt also that this cost of 82,000 Rupees a mile is far below the actual cost, especially when allowance is made for doubling parts of it, and for increased rolling stock and station accommodation.

(Article from the Madras Times, December 16.*)*

We now come to what the *Friend* says about Passengers and there is the same evidence of the rapid diminution of this traffic, as of goods, on the lines of less importance.

Calcutta - - - - - - -	590,000	Prs.
Bombay - - - - - -	553,000	,,
Madras - - - - - - -	140,000	,,

The numbers on the Allahabad line were not given, but the receipts there being only 1-5th of those on the Calcutta line, they cannot exceed 120,000. And this makes it quite certain that over by far the greater part of the Indian Railway the numbers will not be 1-5th of the lowest of these. We should observe that these numbers do not show the numbers travelling over the whole length of the line, but only the numbers taking tickets.

In England the average distance travelled by each individual is only 13 miles, and on the Calcutta line we should think it could not exceed 30, as by far the greater number only travel a few miles into or out of the Capital or its suburban towns. Taking the length opened at 140 miles and the average distance travelled at 30 miles, we have for the average number passing along the whole line in half a year 3-14th of the above number of 590,000 or 250,000 per annum or 800 per day. And in the Madras line, perhaps 2-5ths of 140,000 or 112,000 per annum, 360 per day. Probably in the interior the average will not exceed 100 a day. In the Calcutta Directors' report they state, that the estimated through passenger traffic was 250,000 per annum and that last year there were 1,172,000 on 142 miles. This way of stating it would of course lead one to suppose that the whole 142 miles was traversed by this number, whereas the average is probably as we have shown about 250,000; so that the original estimate for the whole length of the line was exactly what is actually carried in the immediate neighbourhood of Calcutta, and probably 5 times what is carried in the next most productive part of the line, viz, between Allahabad, Cawnpore, and Lucknow.

The *Friend* goes on to compare the Passenger traffic here with that of England, and says that on the Calcutta line it is about ¾ that of England; that is, that here the Passenger traffic immediately adjoining the capital, on a single isolated line, the main entrance into Calcutta, is 3-5th of the average of that on the whole network of competing lines throughout all England including thousands of miles through the comparatively unproductive parts of the country. This seems quite decisive as to the comparative amount of Passenger traffic here, unless they could reduce the fares to a quarter of what they are, which they cannot do, on account of the actual bare cost of carriage.

In Madras, indeed, the numbers have been increased 2½ fold by reducing the prices one half, but we understand that the bare cost of carriage is more than 1 pie, without allowing for depreciation, and it is not certain yet that the nominal profits from an average of 2 pice a head, will not be diminished, notwithstanding the increase of numbers.

The *Friend* says that these numbers point to a future for Indian Railways of which men do not dream. We have no doubt ourselves that the *Friend* is dreaming, but it is certain that great numbers are beginning now to awake as to this matter, and indeed their dreams have already been rather rudely disturbed. On the Madras Railway the unpleasant question has already been forced upon the authorities.—Who is to pay for it? and the same with respect to the other lines will very soon be forced upon those who, like the *Friend*, are dreaming. Nothing can be more certain than that at this moment after several years trial, allowing for depreciation, the most productive 140 miles of Railway in India is not paying bare interest, and there is therefore no possible room for question about the unproductive parts of the country.

He goes on to say, "as yet they are single lines without even roads as feeders," that is, as yet they have not been charged with the additional cost of doubling the lines, and have to compete only with unmade tracks, or very imperfectly navigated, and unimproved rivers; and again, "as yet they have not reached the great termini but each ends in a swamp or a village;" or in other words, "as yet they have not touched the unproductive parts of the country, but each ends within a comparatively moderate distance of one of the four greatest and wealthiest cities of India. Again, "as yet their fares for 3rd class passengers and for goods, are disproportionately high," or in other words, "as yet they have tried certain prices, which though (for goods) they have left little profits (in the Madras line positive loss and probably on the other lines also, allowing for depreciation), have yet only transferred a trifling proportion from the old modes of conveyance; and even for passengers it is quite certain, from the proportion of nominal profits to receipts, that they cannot much reduce the rates without a reduction of profits. On the Calcutta line the repairs are (without depreciation) 50 per cent. of the receipts, so that if the third class fares are 3 P. the bare cost of transit must be about 1½ P. and if the fare is reduced to 2 P. or ⅔ it will require nearly 3 times the number of Passengers to yield the same profits, implying a vast increase of capital expenditure to provide the necessary rolling stock. But if we allow for depreciation, the bare expense of transport can hardly be under 2 P. so that the present prices are as low as possible.

The *Friend's* next para. should be carefully read. It begins when the "Overland traffic," &c. It supposes that there are well-watered valleys between Madras and Beypoor, that English Merchants will prefer bringing their cotton from Berar at 1 anna a ton a mile, to a rate of 1 or 2 P. (as it would cost on the Godavery) and the produce of the valley of the Ganges at the same cost, instead of by the effective system of navigation now being introduced by the Calcutta Railway Company themselves at ⅓ or ¼ of an anna; and that the railways will carry passengers at lower rates than the native boats. On the Madras canal the cost is ½ P. per head, or about ¼ of the probable bare cost of carriage by the Railway. Certainly if these are not dreams, there is no difference between dreams and realities.

In the way the Government accounts of the Railways are kept, the accumulations of interest are not treated as capital, but are kept separate to be repaid by the supposed excess of profits from the Railways. This is evidently simply a false way of keeping the accounts, but in this way the Bombay line has now a balance due for interest of £580,000 after applying all the nominal profits to repay so much of the total of £760,000; quære, taking even the present nominal profits of 4⅜ per cent. in the only really productive part of the line, and without including the 80 lacs for the the Bhore Ghaut, and supposing that 4 3-8ths to be net profit, how long will it be before this 580,000£ will be paid off, by means of a deficit of 5-8ths per cent.? We suppose in the same way the Calcutta line is already saddled with a debt of more than a million for interest, though the Directors are more prudent than their Bombay friends and make no allusion to it in their statement of accounts. We do hope that now at length there are many who are beginning to be willing to look into this matter. What can we possibly gain by throwing dust in our own and other people's eyes. A most terrible mistake has been made and there is now nothing to be done, but boldly to look the difficulty in the face at once, and see what can be effected to mitigate as far as possible the evil consequences which are certainly coming upon us. If we will take this course, much may be done. The worst lines or parts of lines, or at all events those which are obviously unnecessary, may be abandoned at once. Take for instance the direct Bellary line. If the main Western line to Vellore include all the N. W., W., and S. W. traffic, and will not pay even nominal interest, what possible results can there be from one which shall convey only the N. W. traffic. There is not even an apparent necessity for this line, for Bellary could be reached by a shorter line from Bangalore.

But all this saddling of impoverished India, with a new intolerable burthen of 2 millions a year, is even a small evil compared with the vital one, that wherever a Railway is carried, excepting near the line of a navigable river, that part will be sealed up for an indefinite time from that which is an absolute necessity *cheap transit.* The products of India cannot bear a cost of transport of 1 anna a ton a mile, and wherever a Railway is carried, unless there is already improveable water carriage, it will probably be impossible to give that tract works that will provide it with cheap transit.

We wonder that one so acute as our *Friend* is, does not also perceive the signs of the times. There are unmistakeable proofs that a large portion of the public is beginning really to examine this question, and they are increasing every day. One can hardly take up a single newspaper without seeing some fact or argument showing what a prodigious change has already taken place in public opinion on these points. It has been a hard battle to fight, this of Communications for India, even with truth on our side. Those who persist in trying to keep up the delusion about Railways will very soon find, that they have to fight their battle against the prevailing opinion and with the truth against them, a much more arduous undertaking.

We learn from home that so great has been the change in the views even of the Council that only 2 Members are now opposed to the Godavery Navigation. Some money has already been sanctioned and it has been quite determined to prosecute the work vigorously. And on the other hand, the insane scheme of the Godavery valley Railway has been rejected by the Council. This is the second instance in which upon consideration of the subject, a water-line has been decided upon by the home authorities in preference to a railway. The establishment of the Irrigation Company by the Council, and the decided confirmation of their view by the public in paying up in a few months £400,000 when only 50,000 were called for, is another indication of the turn matters are taking. The project of a canal from the Damooda to the Hooghly below Calcutta which seems to be approved of, is another proof. The establishment also of magnificant Flotillas on the Ganges and Indus by the Railway Company themselves are the strongest possible proofs of the change of public opinion.

The *Friend* and other old school men always say why oppose railways ? Because we entirely agree with Lord Stanley, in his speech at Manchester, that they are a " complete mistake"— complete in the strictest sense of the word. Suppose you know your friend is going to Calcutta from Madras, and you met him in his transit half way to the Mount, would any one say why interrupt him, dont you see how nicely he is getting on. But I know his object and I find somehow he is making a " complete mistake," and the better he gets on, the further he will be from his destination. This is the case of the Railways. The objects were 1st to increase the wealth of the country, and 2nd to effect this by giving them cheap transit. But it is quite certain that the Railways will not pay the interest of the capital, that India in its impoverished state cannot afford communications that cost 1 or 2 lacs a mile ; and consequently that instead of relieving the country, they are adding an intolerable load to its old burthens. And 2nd that instead of giving cheap carriage, the whole tendency of them is to prevent the tracts they pass through from ever having cheap carriage. Our friend on the Mount Road, who like the one at Serampoor, may have fallen into a pleasant dream, will of course be at first a little annoyed at our awaking him, but when he sees plainly that every mile he goes is taking him further from his destination, he will feel much obliged to us and acknowledge that it would have been very unkind of us, from fear of his momentary ill humor, to let him sleep on till he woke up 100 miles further from Calcutta than when he set out. We have dealt with India in this matter, as we would deal with a friend sinking under difficulties in his business, by saying to him, now I am going to *relieve*, you from all your entanglement, by buying for you a state carriage and four to take you to your office, which will cost £1000, and you have only to pay me the Interest, and keep a coachman, horses, &c., and you will be able to save half your time in your daily journey. The friend adds, " now dont say a word, I'm not going to ask your opinion ; this is my remedy for your poverty and I'm going to do it whatever in your ignorance you may think, and I shall find means of making you pay the interest though you starve for it, aye and keep up the horses and coachmen too." The friend will no doubt think, that this is an odd way of relieving a half ruined man, to force upon him a payment of 3 or 400 a year, for a thing which he could do without. If he had allowed him to spend these 1000£ in additional means for carrying on his trade, instead of trying to make him play the gentleman, while bankruptcy is staring him in the face, it might really have set his affairs to rights. This is a true representation of what we are doing with India. It is surely little short of infatuation to persist in such a course, when we have before us most palpable proofs of what the results will be.

One thing is certain no such papers as this of the *Friend* can much longer keep up the delusion ; the question we have mentioned, who is to pay for it ? will very soon be forced upon all however unwilling they are to answer it, with respect to every Railway now under construction ; and the longer it is kept out of view, the more difficult will it be to answer, and all the present friends will then be disputing as to whose fault it is that the evil was not met before it was too late.

Of the two great projects for throwing open the Peninsula by water carriage, viz., by the Navigation of the Godavery and the Kistnah, we may mention that there will soon be a fleet of 10 or

12 steamers on the former, that about 1000 tons have been already taken up to Budruchellum, and that now that Captain Haig is returning with the sanction of the Council to the works, there is every probability that the temporary works at the two first barriers will be completed soon, so that in this season the river may be regularly worked 350 miles into the heart of Nagpore. And Surveyors and Engineers are now being distributed along the line of the Kistnah Works, and as there is a prospect of great abundance of labour, there is every hope of considerable progress being made in those works also this season. What will remain to be done is, the completion of the Coast Canal from Guntoor to Doogoorauzpatam, to connect these two great systems of river Navigation with Madras, which will open an encouraging prospect for the Merchants and others there, for it will then become the Grand Port of a vast extent of internal country hitherto entirely shut out from foreign trade. We have no doubt that the Irrigation Company will readily undertake this Coast Canal also if the Government cannot do it.

As for Railways, England certainly wont pay for them, the Shareholders wont pay for them, and nothing will remain but to try to make the already overtaxed Ryots pay. Not less than 2 millions annually will thus most certainly be required from India's Ryots, unless further expenditure is stopped, and probably 1 million even if nothing more is spent.

(First Letter signed P. in Madras Times, January, 4.)

Sir—I quite agree with you in the opinion expressed in a leading article of your paper of the 15th December, that the question of communications is such a fundamental one to India, that it cannot be too fully discussed at every step; but I would add neither can it be discussed too fairly or too impartially.

In offering a few remarks on the statements and arguments which you have brought forward in the leading article above referred to, in opposition to certain calculations (which I have not seen) in the *Friend of India*, I shall endeavour to be as brief as the nature of the subject will admit.

Your object in writing the article, to which I refer, seems to have been twofold:

1*st.* To show that the writer in the *Friend of India* had *under*-stated the cost of the Bengal Railway.

2*ndly.* To show that the same writer had *over*-stated the probable net profits upon the operations of that Railway.

3*rdly.* To show therefrom that Railways in India generally are unpromising and unwise speculations.

My object will be to show that the statements and reasonings by which you support your own views are inaccurate and one-sided; and that the conclusions to which you imagine you have arrived, and to which you would lead your readers, are consequently unsound and unworthless.

You endeavour to show Ist that the cost of the Bengal Railway is far greater than that stated in the *Friend of India,* and you raise it by your own peculiar process from Rupees 1,06,000, to Rupees 2,10,000 per mile.

You say that the *Friend* asserts 140 miles to have cost rupees 1,06,000 per mile, but you add, the statement is " totally fallacious." And why ? because the Directors at home have estimated the average cost per mile of the whole line to Delhi at Rupees 1,45,000 per line—ergo—the *Friend's* statement that the portion already completed has cost Rupees 1,06,000 per mile is " totally fallacious." This seems to be neither logical nor candid.

But we will assume that the line will cost Rupees 1,45,000 per line (though the average cost of lines in India, if carefully constructed, should not be above one half of that) how do you increase this to Rupees 2,10,000 ?

You first add Rupees 28,000 per mile for interest during the time the line is under construction. Upon what authority do you do this ? Is it customary ? Is the Capital expenditure of any of our Railway, or other similar Companies so calculated ? Is it not, on the other hand, certain that in this particular case, this very interest is by the contract between the Company and the Government expressly excluded from the Capital upon which the 5 per cent. interest is guaranteed ? As therefore your object is to show what amount of interest on Capital the undertaking is likely to yield, is it not manifestly incorrect and unfair to include in that Capital the interest which is paid by Government and not demanded again until the net profits are in excess of the guaranteed interest?

Do we find this interest during construction generally included in similar estimates? I have but one case by me, viz., that published in your paper of the 16th November last, being an estimate of certain Canal works submitted to the Directors of the Irrigation Company. This estimate is prepared by an officer distinguished as much for his prudence and judgment, as for his energy and ability. I see no interest during construction entered there.

Again, having in this manner obtained an addition of Rupees 28,000 per mile to the estimated cost of the line, raising that cost from Rupees 1,45,000 to Rupees 1,73,000, inclusive of Rupees 20,000 per mile for rolling stock, you actually add a further sum of Rupees 37,000 per mile as the cost of more rolling stock; and to your own satisfaction, and certainly to the admiration of your readers, bring the entire cost of rolling stock up to Rupees 57,000 per mile!!

You have attached importance to the fact of the Directors having said, or being supposed to have said, that the estimate allowed "only" £2,000 per mile for rolling stock. Now whether this word "only" is introduced by mistake (which is most probable) or whether it is merely an evidence of the ignorance of the Directors, you would have done well to have made some inquiry before permitting the little word to lead you into so ludicrous a blunder. £2,000 per mile is a very large sum for rolling stock. One half of that is usually allowed in England on lines of considerable traffic, and you will find that Mr. Berkley, the able and experienced Chief Engineer on the Bombay line, thought an allowance of £700 per mile sufficient for an estimate of the Sholapore and Bellary line. You allow £5,700 per mile for this one item, and in this manner you show that the opinions of other men are "totally fallacious."

Your reason for this extravagance is, that estimates are so generally defective—but your knowledge of human nature must have already taught you, or your experience as a Journalist at Madras soon will, that this aphorism applies only to estimates made by an advocate of the work estimated for. It is surprizing to observe through what different re-fractions Madras estimates, for different works, may be thus viewed by the same person.

And now to your profits—you argue thus :—On the Bengal line ½ a year's gross receipts are already recorded at per mile Rupees.. 7,200

The receipts on the Allahabad line have been reported at per mile... Rs. 1,509 therefore—as the Bengal line extends up-country the average mileage receipt upon the whole will be reduced.

The great and vital mistake you made here is, that of reasoning as if the extension of the line had no effect in increasing the amount of traffic drawn into it, even supposing we have to do only with existing traffic.

Can you suppose that of the traffic that would take to the line when complete from Cawnpore to Calcutta, or *vice versa*, the whole or any very considerable portion now takes to the mere fragment at either end. Surely if you consider the subject dispassionately,—if you would inquire even what is going on at your very door, you would see that our several lines of Rail must stretch much further than they have yet done into the interior before they can expect to attract the traffic from remote districts and stations.

But I have a more serious charge to make against your calculations and reasonings. You entirely ignore in a manner that if not patent to our senses would be incredible in any one undertaking to enlighten the public on the subject—you entirely ignore the tendency and capability of the Railways in creating traffic. Let your readers clearly understand you. Do you look upon good roads, Canals, Railways, as works undertaken merely to accommodate existing traffic, or with a view to their causing as well as accommodating an increased amount of traffic? Can there be a doubt? Would any sane man or a body of men, lay down a Railway, or expend large sums on a Canal, merely with a view of carrying an amount of traffic which miserable roads have hitherto sufficed to create and to accommodate? Do you generally find when projects of this nature are placed before the public that the returns are estimated in dependence solely upon existing traffic? or, however they may be estimated in various cases, do you not find in all that the effect of improved means of communication is to augment the traffic of every kind? Turn to the history of Railways in any country you like—take even England or Belgium where they began with the accumulated business of years of commercial prosperity, and with the means of communication already brought to great perfection, and see whether the effect of Railways there has or has not been to augment the traffic greatly and with unparalleled rapidity. If this increase has been thus great in countries already highly developed, what may be expected in such a country as this.

This indeed is the vital element in the whole question. It is for this that Railways and other works of communication are constructed, and yet this you omit from your calculations altogether and argue from present traffic—from a traffic due to the most defective communication in the whole civilized world, that the Railways in India wont pay.

Strictly speaking the question of paying, or not paying, does not depend upon the present amount of traffic. It depends upon the natural resources and political prospects of the country.

In a country like this the Railways must do their work before they will *pay*, and this work is to carry men and goods cheaper, safer, faster than they ever yet have been carried—to aid in the diffusion of knowledge—to stimulate the industry—to quicken the intelligence and promote the natural interests of the people, this the Railways can do, and where tried have done to an extent that no other system of communication yet known can possibly effect. If, however, the Government were to say we will lay down no Railway till we see traffic enough to make it pay a good dividend, they would be—especially in such a country as this—too much like the "scholastic" of old who refused to enter the water till he had learned to swim.

In conclusion, let me urge with especial reference to the high principles upon which your Journal is professedly conducted, not to undervalue the importance of bringing those principles to bear on all the subjects you are called upon to discuss. I have now no fear for the Railways, except indeed that they may not be managed with a liberal and judicious foresight so as to become instrumental to the full development of this country's resources; but let me remind you that you take no small responsibility upon yourself in attempting to render unpopular and to discourage these great works. You may be right, and you certainly are right, to state your opinion fully and fairly, but it behoves you to study the subject very carefully before you form those opinions, to bring to its consideration a candid and impartial spirit.

Let me then urge you to consider well and carefully what is likely to be the effect of these works on the future of this country.

1st. In promoting the material interest of the people, by carrying their produce 3 or 4 times cheaper and much more quickly and securely than at present, and in facilitating the introduction of European capital and skill among them.

2ndly. In stimulating moral and intellectual improvement by the extraordinary facilities offered to personal communication from one end of the land to the other; in giving free and convenient passage to Europeans of all classes among the people; in strengthening and at the same time cheapening the Government of the country by rendering the services of a comparatively small force sufficient for the maintenance of peace and order; and observe that the mere payment of interest on capital expended is not by any means the only important result to be looked to from these works—that although it does—for obvious reasons—occupy a prominent place in men's minds at home, here every farsighted man will, while indulging the hope that the Capital invested may meet with fair and substantial return, look with far greater interest to the many incalculable benefits these improved means of communication will confer on the people at large.

Let me then, in order to put the matter in the clearest possible light before yourself and your readers, remind you that in your paper to which I have referred, you have undertaken to show that the cost of Indian Railways is more than is generally believed—the return from them less—that in order to do this you have added Rupees 28,000 to the mileage as interest on capital while the work is under construction, doing this without the sanction of established usage and hereby vitiating the amount of Capital upon which dividends are to be declared. You have moreover added the sum of Rupees 37,000 per mile to the very large allowance of Rupees 20,000 made for rolling stock, thus increasing the estimated cost of that one item to the unheard of sum of £5,700 per mile.

You have in your calculation of return wholly ignored the increase of traffic which may be fairly expected (even in the present condition of the business of the country) from the further extension of the line and the completed connexion between such detached fragments as the Calcutta and Allahabad lines.

You have based your calculation of traffic and return on the assumption that there will be no considerable increase of traffic due to the operation of the Railway itself, but that on the contrary as time rolls on and the line advances, the mileage traffic will remain on each portion as at present and the average mileage traffic on the whole will be diminished, and while giving the present returns on the Bengal line, you have carefully kept out of sight the fact that they have been steadily on the increase from the beginning.

With reference to this last point you do indeed remark—*aside* it may be said (and after having exhibited the calculation by which the profits are shown to be next to nothing):—"We have no doubt that the traffic will continue to increase, but there is not the smallest probability that it will increase for many years to come sufficiently to make up for the present deficiency of returns."

Having then with a little "faint praise" jumped lightly and easily over the most important element in the whole calculation, you settle it to your own entire satisfaction, and beg the whole question at issue by a "probability" based upon mere assumption.

It may be well to correct another error into which you have fallen. You say the decline in the profits on Railways at home is due to their miscalculating the working expenses at first, these not allowing for depreciation. It is due to nothing of the kind. On the contrary you will find that the working expenses, in relation to the work done, have steadily decreased in consequence of improved management in the several, and especially in the Locomotive, departments.

The diminution in profits on Capital is mainly due to the great extent of branch and competing lines, to the amount of Capital raised on preference shares, on which high interest is often paid to the prejudice of the stockholders. In fact an infinite amount of mischief both to the Railway proprietors and to the nation at large, has arisen from the reckless extravagance of most of the Boards, and from many, if not most, of the latter lines having been undertaken as mere stock speculation—temporary investments without any serious view to their ultimate success.

There are lines in England now, and those chiefly engaged in mineral traffic, which pay their 9 and 10 per cent. In fact it would be a monstrous delusion to take the *average* return from lines so various in their original cost, as well as in the nature of the traffic as those of England are, as a guide in the consideration of a Railway project in any other part of the world, or even in England itself.

Since writing the above I have seen your paper of the 16th. I fear this letter is already too long and must reserve what I have to say on your "continuation" to another opportunity.

(Article from the Madras Times, January 4.)

We are rejoiced to see the question of communications in India undergoing something like a real discussion at last. The late Secretary to the Government of India protested against "adverse discussion" and this has been the usual course hitherto, and no doubt the gentlemen on that side were right. But what are we to think of a case in which discussion must not be allowed. Every body knows that there is but one reason for a man deprecating discussion.

Our correspondent *P.* has entered upon the question in support of Railways, and we recommend to our readers a careful consideration of his letter. *P.'s* first objection to our remarks is that we overstate the cost of the Calcutta Railway. He says that the *Friend's* calculation of returns based upon a cost of 100,000 Rupees a mile is not fallacious. But what are we to do; we have the statement of the Directors that the average cost of a single track it is now estimated will be 145,000 Rupees and of a double track 175,000 Rupees without accumlations of interest. There can be no doubt that the *Friend* is mistaken in supposing that the part already opened cost only 105,000 Rupees. But surely if it did, a calculation based upon that part when the average of the whole is about 160,000 is fallacious.

Nobody can suppose that the traffic near Calcutta is not greater than it will be any where else, and to calculate therefore from a traffic much above the average and cost much below it, is totally fallacious.

With respect to the addition of the accumulated interest to the Capital, it does not in the least matter whether the Government excluded it or not ; nothing can be more certain than that it is part of the expenditure. No mode of making up the accounts will get rid of the 70 Lacs of Rupees that has to be paid as interest on the Bombay line for instance. That is a fact, and somebody must pay the money. It is as much part of the cost of the Railway as that which has been expended on the works.

P. then remarks that there is no such item included in the Estimates of the Irrigation Company's Works. This is a singular argument. Did the Irrigation Company's Engineer calculate the probable cost per mile of his Canals, or the profits, from those of the Railway Company's. Of course he based his calculations not upon Railways, but Hydraulic Works. There is no such item as accumulated interest in the Rajahmundry and Tanjore Works ; they paid their interest over and over again from the very first. This is one of the grand differences between Works suited to the circumstances of the country, as Irrigation and Navigation Works are, and those that are not. The two Colleroon Annicuts were completed in three months, and long before the end of the year not only the interest but the whole cost was repaid into the Treasury. The Irrigation Company's Engineer would have sought in vain for data for estimating the accumulations of interest on great Hydraulic Works, such as the Bombay line has furnished of that on Railways.

P. next objects to our allowing an addition of £3,700 a mile to the £2,000 supposed for rolling stock. But he mistakes us; we said, "allowing also for defective estimates," for part of the sum mentioned by the Directors is only estimated. We don't pretend to know what rolling stock will cost, but we are sure we are quite safe in supposing that the Directors were right in saying "*only* £2,000," rather than our Correspondent, as the former were at the time not writing controversially.

We must however add that the Consulting Engineer of our Railway estimates the cost of the present rolling stock at 1500£ a mile, for an average traffic on the whole length of the line of 400 Passengers a day and 44,000 Tons a year. In a second letter from P. he reckons that a Passenger traffic of 1150 per day, and 300,000 tons a year, would only yield a profit of 5 per cent. on 145,000 Rs. a year, so that in proportion, a rolling stock of probably 6000£ a mile would be required for even bare interest on a capital much below the actual cost of the Calcutta line. The present rolling stock on this line, estimated at 1500£, only provides for a nominal interest of 2 per cent. on 80,000 Rs. We must confess that we cannot see any defect in our argument, that if the Allahabad Railway has only one-fifth of the traffic of the Calcutta line, we have every reason to conclude that the average of the whole line will be less than that near Calcutta. If the traffic on the next most important part of the line shows such an enormous falling off, compared with the Calcutta traffic, surely we cannot be wrong in arguing that those parts which are far from such great centres of traffic as Allahabad will have a traffic much below that near Calcutta. We are completely at issue with our correspondent as to the average traffic ever equalling that at present obtained near Calcutta. Nothing is better ascertained than that the long traffic on any line is comparatively insignificant. In England with continuous lines of 250 miles and more, the average distance for passengers was a few years ago only 13 miles. We have before us returns of the great American lines; on the New York, Central 556 miles in length, the through passengers were only 1-13th of the whole, and the average distance travelled by each passenger only 60 miles, or 1-9th of the whole length of way. Even in America and

England where there are fifty times the number of wealthy people that there are in India, the numbers who travel long distances is very small, and there is not the least ground for supposing that the numbers travelling several hundred miles in India will be a fiftieth part of the number travelling a few miles out of Calcutta. The extension of the Line will no doubt add considerably to the traffic on the part now open, but to suppose that it will add so largely as to raise the average of the whole is quite out of the question.

Neither men nor goods can bear the cost of Railway transit for great distances in large numbers and quantities. We cannot be mistaken in supposing that as in England and America, the Railways are almost entirely supported by the short local traffic, so here also, that nine-tenths of the traffic will be for short distances, and consequently that no extension will make so great an addition to the numbers now travelling between Calcutta and the series of populous towns near it, as to raise the average of the whole line to Delhi above the present numbers, especially that now the Government and several Companies, among them the Railway Company itself, (a most significant fact,) are preparing magnificent flotillas for the river, stimulated by the enormous profits of the present Navigation Companies, notwithstanding the ignorant way in which the Navigation has hitherto been carried on. The Government for instance are building a vessel to carry a whole Regiment at 13 miles an hour on a draft of two feet; and the Chairman of the Railway Company said at a public meeting, that he had no doubt their fleet of 10 or 12 very large Steamers would pay their cost in one year, or in other words yield 100 per cent. *P.* will hardly think the Chairman a bad authority in such a case. Compare this with the real profit on the Railway, certainly not three per cent.

But to return. *P.* goes on to say, " you entirely ignore the tendency and capability of the Railway in creating traffic." To this we have unhappily too ready an answer at hand. The Madras Railway so far from creating traffic, has totally failed even to absorb the old traffic of the common road, although the prices have been so low that the present Consulting Engineer states the average cost of carriage of Railway materials to be 9 Pies a ton a mile (without allowing for depreciation and heavy repairs,) and the charge is 8 Pies for first class and 10 Pies for second. The cost of the carriage of goods generally would of course be greater than that of Railway material, which would be carried only at the most convenient times. So that it is certain that the present prices for goods entail a considerable loss, and so it is expressly stated both by the late Consulting Engineer and the present in their reports, that there was a loss (without depreciation, &c.) on all goods carried. But further as the water communications extend the traffic will inevitably be transferred from the land to the water.

(Extract from the Madras Times, January 7.)

P. goes on to say, " you argue from present traffic, from a traffic due to the most defective communication in the whole civilised world." In the first place how are we to judge of communications, as to which are most defective; surely as in every thing else by actual results. This is the only decisive test. At this moment there is a fair trial as to efficiency, between two kinds of communications. Which are we to consider the most defective, the one that carries a small part of the whole traffic on a certain line, or that which carries by far the greater part. Hitherto after *four years* trial, the common road, and " that not a very good one," as the late Consulting Engineer called it, has most decidedly beaten the Railway, and we must therefore conclude that there is one kind of communication more defective than a bad common road. The late Consulting Engineer truly said, " If the Railway cannot supersede the road in every thing, not only so but if it cannot convey every thing much cheaper than could be done by the road it must be pronounced a failure."—As far as any benefits can be expected from it in carrying the raw produce of the country, the Railway has actually thus failed after a four years' trial. But further, in our remarks was there one word about present traffic on the common roads ? Every calculation was based upon the traffic on the Railways and that after from two to five years' working. We are at a loss to understand how *P.* could charge us with arguing from present traffic on common roads. We argued solely from actual results on Railways opened sufficiently long, and to a sufficient length to afford very considerable data, as to how far they would operate in the creation of traffic.

P. next observes that the work of the Railway is to convey men and goods cheaper, safer, faster, than they have ever yet been carried. Did *P.* really write this seriously? Is he really not aware that water carriage is cheaper than that by Railway? What are we to think of that side of a discussion which leads men to make such strange assertions? On the Hudson River in New York, 1st class passengers are carried at from 16 to 18 miles an hour at 2½ P. a mile, allowing for the difference in the value of money, much less than ½ P. in India. On the Madras Northern Canal, the charge is ½ P., on the Rajamundry Canals 1 P., these two last without the help of steam power. And for goods, the cost from the Menai straits to London, 750 miles of very bad coast navigation, the charge is 16 shillings a ton, equal to 2 P. a mile in England, which is equivalent to not more than ½ P. here. On the Erie Canal in America, the cost is 4 P. including 2 P. for toll without steam power, equivalent to ½ P. here. And now that the Canal is enlarged and steam used, the cost will be greatly reduced. On the Ganges, *up stream* the charge is 13 P., but this has yielded enormous profits, the *cost* is under 4 P., with very poor boats. With the steamers now being placed on it by the Railway Company and others, the cost, up stream will certainly be under 2 pie, and much less than 1 down stream.

The late Consulting Engineer estimated that the mere cost of carriage on the Railway would be more than 1 pie a mile, for 3rd Class passengers, supposing very great numbers carried and allowing only an insignificant sum for maintenance of way, &c. and even with such great numbers a large addition must be made even to cover bare interest on 1 or 2 lacs of capital per mile. It is certainly very doubtful whether there is any real profit at all in the present price of 2 p. on the Madras Railway.

When *P.* says that Railways carry cheaper than any other means, he makes an assertion which entirely misrepresents the fundamental point in the whole question. If the Railways can carry at cheaper rates including Interest of Capital, than any other means, they are in the main point the fittest Communications for India. But nothing can be more certain or notorious than the contrary. The lowest *charge* at present is 8 P. per ton, and with this not one is paying interest for its cost; while on Canals and Rivers with Steam power, goods can certainly be carried at from ½ P. down stream to 2 P. up, and the great mass of the traffic is of course down. At these prices the produce of India *can* bear transit over the long distances from the interior to the coast; at the Railway prices they cannot, and this is the essential point in the whole question. If the water communication now in progress were completed, the country 500 miles distant would be laid under contribution for the supply of Madras, for instance, and the city saved probably at least 20 or 30 lacs a year. Take another instance in the coal for Calcutta and the Ganges Steamers. It now costs 9 Rs. a ton at Calcutta; and were there direct water communication to the mines it might be sold at 5 Rs. How great an effect would this have on the whole prosperity of Bengal! It would still further reduce the cost of carriage by the Ganges, and thus affect the whole trade. We are happy to see that a Canal is now to be cut from the Dumoodah to the Hooghly which will be one step towards such a direct water communication. We see the effect of even very imperfect water communications now; for instance, the *number of Boats* entering the Calcutta Canal last year was 170,000. If the cost by water were raised to the lowest Railway rate of 8 P. it would at once destroy 9-10ths of this traffic.

It was necessary to dwell a little upon this bold assertion, that Railways carried cheaper than any other means; and we shall yet perhaps have to return to this great essential point. We would only here again refer to the severe struggle that has been going on before our eyes between the Railway and the "most defective means of transit in the whole world," (as P. designates it) for four years, in which contest the Railway has hitherto been completely defeated. How is this if a Railway carries cheaper than any other means? Had there been a Canal on this line carrying at 1 P. or even at 2 P. a mile per ton, how long would the contest have lasted? There is no contest between the common road and the Canal in Rajahmundry. No volumes of discussions there how to contrive to transfer the traffic from the old means to the new. Nor is there any question there about the creation of traffic. Probably much more than 9-10ths of the present traffic is entirely new, created wholly by the cheapness of production and transit, both the effect of water.

P. then proceeds gravely to remonstrate with us on our endeavours to show from actual results on the four most important lines of communication in India, the entire failure of the Railways, both as a speculation and as providing the first grand desideratum for a poor country, *cheap* transit. He says "Let me remind you that you take upon yourself no small responsibility in attempting to render unpopular and discourage these great works." One might be excused smiling on reading this. Is there no responsibility in labouring to keep up this delusion in spite of the facts which the last five years have produced? No responsibility in stating that Railways carry *cheaper* than any other means?

He then goes on to speak of the "effects of those great works on the country," in carrying produce three or four times cheaper than at present and in the introduction of European skill and capital among them."

The late Consulting Engineer in one of his reports stated that carts carried 1,200 lbs. from Arcot to Madras for 4 and even 3½ Rs., and returned with salt for 2 or 2½ Rs. being an average of 14 P. a ton a mile including collection and delivery. The present Consulting Engineer says, that the Railway material cost 9 P. a ton a mile, (without depreciation or interest;) is it correct then to say that Railways carry three or four times cheaper than common roads? And if it were, what would it signify? The question is not whether Railways can carry three or four times cheaper than roads, but whether they can carry cheaper than by any other means, rivers or steam boat canals for instance.

(Article from the Madras Times, January 10.*)*

We refer again to *P.'s* grave warnings respecting our responsibility in trying thoroughly to examine this question, and of the danger of our remarks discouraging British enterprise in India. We would only ask, which is most likely to check the introduction of British Capital into India, the leading men into an expenditure of many millions upon works which certainly cannot possibly pay even bare interest, or the warning them against such, and pointing out to them those that being really suited to the circumstances and wants of the country, will probably yield abundant returns.

Let us suppose that instead of nominal net profits of 2 and 4 per cent., such as the Railways are now paying after the expenditure has been going on for six or eight years, the subject had been submitted to real discussion, and in consequence, the same money had been expended on works yielding 20 or 30 per cent., in how different a position should we now have been with respect to the introduction of British Capital into India. The effects of the Railways in this respect have only been to make people in England suppose that Indian investments are hopeless things. So that at this moment only a trifling amount of Capital, excepting what is forced in by the guarantee, has yet been invested here. The prodigious profits on River Navigation have indeed now at length begun to convince the people at home, that there is at least one opening for profitable investment, and no doubt this will help to counteract the ruinous effects of the Railway speculation. But if only a small portion of the millions already spent upon the Railways, and the six or eight years employed upon them, had been applied to highly productive works, long before this, British Capital would have poured into India abundantly without guarantee. How strange it seems to suppose that the only wise and prudent course is to stifle discussion, and blindly to rush into an expenditure of 40 millions, without ascertaining whether they would not be better employed in a totally different way.

Even before the Railways were begun there were ample data to satisfy the public that they would not pay at all; but the proofs that they would not pay anything approaching to what Irrigation and Navigation were paying were overwhelming. And now we have actual results after a trial of several years to help us in understanding the case, and surely to refuse to look thoroughly into the matter is not prudence, but the height of folly.

Besides this first fatal objection to Railways that they utterly discourage British Capital, their effects are 2ndly. To add to the burthens of an insolvent and impoverished country, about two millions a year, the interest of the 40 millions, for there is not now any probability that the whole of the lines presently in hand will more than pay their expenses. The line from Madras to Sholapoor for instance cannot possibly pay its expenses. If the Madras and Goriattum line pays nominally only 2 per cent., and in reality nothing, what can we expect from a line which for 600 miles does not pass one single populous or wealthy city. 3rdly. Their effects are as far as possible to seal up the unhappy tract of country they pass through, from really cheap transit for an indefinite time, excepting when happily a natural navigation renders them innocuous in this respect. North Arcot for instance, within 100 miles of Madras, will be beaten in the supply of the Madras Market, by tracts 500 miles distant that are favored with water carriage.

P. writes as if the whole question lay between Railways and Roads; one would suppose from reading only his letter, that there were no such things as Rivers and Canals. The real question is, shall we make use of our immense natural advantages in our magnificent rivers, both for Navigation themselves and to supply Canals, or shall we madly continuing to throw away these great gifts, persist in purchasing communications that will not answer our main purpose at all, at a cost of one or two lacs per mile, works that will neither carry cheap nor yield returns.

In Rajahmundry about 1000 miles of navigable river and canal are now connected and navigated. The whole expenditure has been under 40 lacs, giving an average of 4000 Rs. a mile, and $\frac{3}{4}$ of this should be charged to irrigation. A great portion of these are certainly narrow, but as certainly they fully answer their purpose of conveying at an almost insignificant cost. Will any body be bold enough to say that this district would have been more benefited by 40 miles of Railway, than by 1,000 of Water-way, and the irrigation of 700,000 acres besides. So with the whole Presidency. If 8 millions are spent on 1000 miles of Rail-way, this would have afforded an average of 40 lacs for each district of the Presidency. The whole system of Works in the Delta of the Godavery will cost about 50 lacs, but a great part of this is for the benefit of Masulipatam. An average of 40 lacs for each district of the Presidency would have provided at least 20,000 miles of effective steam boat navigation, besides irrigating perhaps five millions of acres. The special produce of each part of the country might then have been conveyed to the Ports, and to every other part, and it is impossible to conceive the revolution that would thus have been made in the Finances and the material well-being of these 20 millions of our fellow-men. And most assuredly if the British public had been led thus to invest their Capital, the direct return to the shareholders would have been such as to encourage in the strongest manner further investment.

Again the *estimate* for improving the Upper Godavery is 6000 Rs. a mile, and the smaller rivers would cost much less. Now which is most prudent, to obtain water ways at from 1,000 to 10,000 Rs. a mile, which will carry at from ½ to 2 P., or Railways at from ¾ lac to 2 lacs to carry at 8 or 10 P., the latter a rate which effectually excludes the great traffic of the country ; and *that* too without first settling the serious question, *who is to pay the interest of the money?* Which is the kind of work that is most suited to the natural advantages and the wants of the country, most adapted to promote its prosperity and to draw British enterprize and capital to it ?

An old Physician said, " When I was a young man with one patient a day, I used to walk, because I could not afford to drive, but when I had more patients than I could reach on foot, I kept a carriage, because I could not afford to walk." But if he had so misjudged as to keep his carriage at first, he might have gone to jail. India at present cannot afford Railways: instead of increasing her wealth, they will be an intolerable drag upon her in requiring a sum in Interest which she is totally unable to pay. But some years hence when by means of *cheap produce* and *cheap transit* she has become wealthy, she might be able to pay the Interest of Railways on any lines where they had not rapid steam boat communication.

We were not in error when we stated that Railways in England have declined in profits in consequence of their having allowed nothing for depreciation. It is notorious, that as is now done here, every railway there at first divided the whole of their net returns, as if they had been real profits; no wonder the profits declined, when after some years they had to provide for heavy repairs, replacement, &c. That there are cheap lines in England for Mineral traffic, carried at very low speed, which pay a moderate profit is true, but they are no example for the general system of Railways in India.

We have now, as we trust will be allowed, fairly met every point in the letter of our correspondent. We shall perhaps take some future opportunity of taking notice of those points about which he has *not* written.

Referring however, again to *P.'s* remarks about *creation of traffic*, we may quote the following passage from the last report of the present Consulting Engineer.—" We have not yet had sufficient experience of Railways in India to guide us in determining with any degree of confidence, what change would be most likely to prove the most remunerative in connection with the goods traffic, and as we have this knowledge to acquire, it would appear advisable to make at once some alteration in the existing arrangements rather than pursue a system of *the failure of which we have had practical proof.* In any case should a reduction in the goods charges not be found to attract a far larger amount of traffic than is at present carried, there will be *but little prospect of the Railway ever paying.*"

It does not appear how reducing the rates, when the goods are now carried at a loss, can ever make the Railway pay however much traffic it attracted; how multiplying a loss can change it into a profit. The above passage is written by the Engineer after a severe struggle carried on for four years under the management of two different Consulting Engineers. Is not this perfectly decisive as to the suitableness of a Railway to this country in its present state. Suppose even that all the present traffic had been transferred to the Railway through some earnest endeavours of the Consulting Engineers, what would be gained by it, when it is only effected by means of a trifling diminution of charge. It is quite clear that all the Railway can aim at is just to carry under the cost by the Road.

What the country absolutely requires is that the cost of carrage should be reduced to 1-10 or 1-20 of what it is at present, so as to admit of coarse produce and materials being carried by millions of tons several hundred miles. Till this is accomplished, nothing is done. It is a matter of no importance whether a few hundred tons of Indigo, &c. or a few thousand tons of Cotton, are carried at 10 P. or at 12 P.; the question is how we are to provide for the great traffic of the country, the millions of tons of grain and seeds, of fuel, timber, stone, &c. to be carried 3 or 400 miles at ½ P. or 1 P. per mile. This is what the country requires. In England 19-20ths of the traffic, is carried by the coast, the rivers and the canals, (though mostly without the assistance of steam power,) and if her traffic were confined to that by the Railways, she would be instantly paralyzed. Even in America where the canals and some of the rivers are closed by Ice for four or five months in the year, by far the greater part of the traffic is carried by the Rivers, Lakes, Canals, and Coast; and now that the great Erie Canal is enlarged so as to be worked by steam, it is expected that its traffic will be greatly increased, though there will still be the terrible draw-back of its being open only half the year. Here where we can have water communication throughout the year, with fuel at an unprecedented low price, generally perhaps at about one Rupee a ton for wood, equal to 2½ for coal, we shall convey cheaper than anywhere else in the world. On the Ganges coal costs 15 Rupees a ton, yet even there we see the fruits of water carriage in enormous dividends.

(2nd Letter signed P. in Madras Times, January 19.*)*

SIR—I now proceed to consider the continuation of your article on Indian Railways as given in your paper of the 16th instant. I find in this fallacies and one sided arguments which have beeen exposed and refuted over and over again. But the village schoolmaster of Goldsmith was no mere whimsical emanation from the poet's brain—he was the type and representative of a large class in every generation "though vanquished they will argue still :" and these fallacies and their so called arguments must still be met and still be refuted ; for uttered as they are with dogmatic tone and shrouded in a mist of so called calculations that render the subject wholly unintelligible to the multitude, they produce their effect "non vi sed sape cadendo."

There are two or three indisputable facts which I wish to impress upon your mind in limine, since you appear either to be wholly unaware of them or to have entirely overlooked them.

1st. The working expenses per ton mile, or per passenger mile necessarily fall as the amount of traffic increases, and the very small amount of expense necessarily due to the movement of a passenger is illustrated by very careful calculations made in Belgium from actual results, which showed that the portion of that expense which was not susceptible of continued reduction as the amount of traffic increased, was only the 1-200th part of a penny per passenger mile.

2ndly. The working expenses are obviously greater on a short length of line than on a longer one, especially in the cost of management in each department.

3rdly. It is a mischievous and oft exposed fallacy to speak of a railway as if it were a luxury for a rich people and a rich country. You compare it, as I have heard it done before by men who had not had the means or the inclination to study the subject, to a " State carriage and four." The analogy is utterly unsound. A State carriage and four could not carry bags of rice so cheaply as a bandy and pair of bullocks. The Railway can and does do it cheaper. Have you been in Europe during these lasty thirty years or have you been there to no purpose? Have you never seen or heard of a hundred thousand Pounds being invested in building Steam Engines to make the cloth that is intended to enfold the loins of the poorest among men? Do you not know that for years past, the application of Capital to the manufacture of the commonest article of consumption has been cheapening these articles, and driving from their looms thousands of the industrious poor, and are we expected now to believe in the year of Grace 1859, that steam power is a luxury for the rich? a discovery with which the poor have no concern? It is some years now since a popular and intelligent Officer of Cavalry—now gone—said with a good natured though rather contemptuous smile—" No, no—you can't carry bratties by railway yet." I replied " why not," to which there was no answer. He remembered perhaps, though you have forgotton the old nursery problem, of the difference between a pound of lead and a pound of feathers, and it may have flashed across his clear and unbiased mind, that if a railway could carry a ton of beer cheaper than a bullock cart could it must also beat the latter in the conveyance of a ton of bratties; and let it not be forgotten, that the lines which pay the best are those chiefly occupied with coal and other mineral traffic. So let us hear no more if you please of your carriage and four. And now to your mode of calculating traffic, profits, &c.

You first give an evidence of the " rapid diminution of passenger traffic on the lines of less importance" returns for a certain period on three main lines as follows:—

Calcutta............	500,000.
Bombay..............	553,000.
Madras.............	140,000.

Now let me ask you—a few paragraphs further on you say, " In Madras indeed the numbers have increased 2½ fold by reducing the fares"—then why did you not adopt these altered numbers? Why put down 140,000, instead of 350,000?

All your calculations upon these erroneous numbers are clearly worthless.

You adhere moreover to the present traffic on detached fragments of lines as the basis of all your calculation, and speak of the present traffic on the line in the "immediate neighbourhood of Calcutta" as if it had attained its maximum, and that maximum very far beyond what the average on the whole line was ever likely to attain to. Upon what grounds do you assume this? There is a fair and remarkable analogy between the traffic on a long trunk line of rail and the water in a river. What then would be the condition of the Hooghly or even of the mighty Ganges if its channel was suddenly destroyed, and instead of one continued stream of 1,500 or 2,000 miles, we had but a cut of 100 miles near the sea, and another between Allahabad and Cawnpore. The water passing through the Sunderbunds would be confined, as is now the traffic on the railway, to mere local drainage. But we may apply the analogy presented by a river in another way—in its traffic. Look at the Godavery. They talk of opening up and rendering navigable several hundred miles of that stream—truly a noble project. But we have, I believe already, upwards of 100 miles of clear navigable channel above Dowlaishweram. Now, one can imagine, adopting your views, some guileless individual submitting to the active and public spirited projector of the scheme, his views of the probable traffic and ultimate profits, based on the present amount of traffic, in the immediate neighbourhood of the rich district of Rajahmundry. You would be surely responsible for anything that happened to the unfortunate Gentleman.

Again, you say, speaking of passengers on the Madras line, " we understand the bare cost of carriage is more than one pie without allowing for depreciation"—further on you forget this, and say, " on the Madras Canal the cost is ½ pie per head, or about ¼ of the probable bare cost of carriage by the railway," i. e., the bare cost before stated at more than one pie is *now* probably" two pies. " If" is your only " peacemaker," and without doubt " probably" is the word of inestimable value for an argument or a calculation. This last jump from " more than one pie" to " two" so strongly reminds me of the veracity of an old friend that were I not treating now of an " Editorial," I should be inclined to exclaim " ans—my friend again, ans diabolous."

I have a few words to say regarding " depreciation." The word has been of some use to you I confess. The more vague and indefinite the better. I shall endeavour to give it some form and substance that your readers may know exactly what they have to learn from it. Doubtless there are many descriptions of property that, do what you will, undergo depreciation of value year after year, a horse does this, so does a man's coat, so alas! does the man himself. All the money spent in repairs here serve but to convince one of the lamentable fact. On the other hand, there are works of man's making that can be maintained year by year as good as new, and upon which the expense of maintenance soon becomes on the average of a short series of years, normal. So is it with a railway and its stock. It has been suggested occasionally in England to some Railway Companies, to keep a reserve fund, but the proposition has been generally rejected as unnecessary, seeing that the expense of maintenance after a few years becomes constant, and as unwise, because such a fund would serve merely as a snare to the Manager, a temptation to play fast and loose with it as circumstances connected with the market value of their stock might render desirable.

And what have you estimated the depreciation at? 2 or 3 per cent. on the Capital ! ! Now the entire working expenses on the Bengal line are, as shown by you, about 5 per cent. on the Capital, and these working expenses include—managements—traffic charges—locomotive repairs—maintenance, &c., and yet you estimate the depreciation of property, that is the unrepaired damages to the property during the same time as equivalent to more than one half those working expenses. I invite you to show any parallel of such an assumption.

I don't think I need go further into your calculation or argument. I will now endeavour to put the nature of profits before your readers in an intelligent form.

The Bengal line I am to believe has cost or will cost Rupees 145,000 per mile. Alas ! that it should be so. Happily there is no fear of any other Indian line costing anything like that sum.

To pay 5 per cent. on that there must be profits per mile to the amount of Rupees 7,250 per annum, or say 20 Rupees per diem. Now there can be no question but when our Indian lines are more extended, the Goods traffic will be of greater importance than the passengers, whatever may have been the case in England. If we take 2-3rds of this for Goods, we shall require say 14 Rupees per mile daily as profits on Goods, 6 Rupees on the passengers. Taking the profits on each passenger at the moderate sum of one pie per mile and three for a ton of Goods, we should require an *average* daily travelling over every mile of 1,152 passengers (or 576 each way) and an *average* daily passage of 896 tons (or 448 each way) over every mile. The relative amount of the two descriptions of traffic would vary on every line and every portion of a line. I have given one out of an infinite number of combinations merely to show what is needed to make the line pay. Is there anything extravagant in such expectations as these. You have thought proper to put down the present passenger traffic on the Madras line at 360 per diem over the whole line, whereas for a considerable time past, it has been much more, and the return for the week ending 10th December, shows that it had been equivalent during that period to upwards of 800 passengers per diem over its whole length, and this upon a mere fragment—in the infancy of Railways—and when neither the wealth, nor the intelligence, nor the habits of the people have had time to be materially effected by this extraordinary change in their means of intercommunication. I regret the unlooked for and unnecessary cost of the Bengal line, but happily there is no line in India—few in the world, with such a magnificent field to work upon—there is no fear for it yet.

One word upon the water projects touched upon in your article. What have they to do with the railways? What has the Godavery to do with Salem and Bangalore? Let your works of navigation go on and prosper, but let them stand upon their own merits, and by all means let them exhibit to the astonished world the unparalleled spectacle of goods carried on an "improved" river for one pie per ton per mile. Every well wisher to the country will rejoice thereat. But let us remember that serviceable and excellent in its way as this water carriage is, there are many things essential to the progress of a people it cannot do as Railways can. It may carry heavy goods cheaper, but it cannot carry passengers, mails, and troops 30 or 40 miles an hour at all. It cannot and never did stimulate the mind and intelligence of a nation, nor tell upon its progress or wealth and strength as Railways have done.

We know that in England and still more in Belgium, the rail has been laid down along side of the canal, and its effect has been either to draw away all the business from the latter, or to give so extraordinary an impulse to commerce generally as to increase the business on the canal rapidly and greatly while loaded with work itself. Who were those men who with a beautiful net work of canals, with never failing supply of water, offering their tranquil bosoms for the conveyance of goods and passengers—Who were those who proposed and actually executed miles of Railway at a cost of 30 or 40,000 Pounds per mile, whose construction has been followed by a stride in national wealth and activity unparalleled for its greatness and its suddeness. Who were they? I leave them to the tender mercies of your contributor.

P.

P. S.—You make much I observe of the ready subscription of money in England to the "Irrigation Company." The popularity of that Company may perhaps be explained by the astonishing and I think unfortunate circumstance, that the meaning of the word "profits" in the covenant between the Government and the Company has been left for future determination, and that consequently many, most I might say—of the Shareholders are under the impression that the difference in the revenue derived from dry and from wet cultivation is (as far as concerns land irrigated by their means) to be considered "profits," and that thus they are to relieve the Government of a large portion of the proprietary right both in the land and the water of this country. Nevertheless in the last *Home News* I read that the shares of the Irrigation Company stand at $\frac{6}{8}$ premium, the East Indian Railway at 1.

December 1859.

(*Article from the Madras Times, January* 21.)

With reference to *P.'s* second letter, we will make no further reply to his accusation of " one sided arguments, a mist of so-called calculations," &c., than by saying, we of course leave it to our intelligent readers to judge on which side are plain facts, and calculations and solid arguments. *P.* mentions three indisputable facts ; first, that the only portion of the cost of carriage by Rail that is incapable of reduction as the traffic increased is 1-200th of a penny. This may be so, but what need have we to trouble ourselves with theory, when we have the actual cost of carriage by Rail both in this country and in others. We are quite certain that Railways cannot carry cheap enough, and also that they cannot carry so cheap as by water. The actual cost of carriage by tolerably effective water lines, and even by very defective ones is so greatly under the bare cost by Railways, as to make the whole difference ; that is, by water produce is carried at rates which answer the purposes of the country and by Railways it is not. *P.'s* second fact is that the working expenses are greater on a short length of line than on a longer one. We have no doubt they are, and so they are on water lines. Railways have no especial advantage in this respect over other modes of conveyance. His third *indisputable fact,* is a very remarkable one,—that it is a mischievous fallacy to speak of a Railway as if it were a luxury for a rich people. If this is an indisputable fact, why is it disputed every day, and that upon proof so palpable, that every body can judge of it. A Railway in India costs from one to two lacs of rupees a mile, and when done, carries so far as we have data at about 10 Pies a ton a mile including depreciation, &c. Some of the water-ways of India have cost nothing, and others have been paid for by their Irrigation, giving their use as means of transit for nothing, others have cost 5 or 6000 rupees a mile. And all these convey at a *cost* of from one to four Pies a ton a mile. We are comparing the *cost* of the two modes of conveyance ; the *charge* is of course another thing, because it includes either more or less of profit, as for instance the up-stream charge by Steamers on the Ganges, where more than ⅔rds of the charge was profit. Again the Railways in England yield on an average four per cent., less than can be obtained in the

Indian funds, so that they are a positive loss to their owners.

If these real facts do not overthrow *P.'s* indisputable fact, there is no such a thing as a real fact. If a man pays from one to two lacs for a thing, and when he has paid it, the work it has to do costs several times more than it could be done for by a means which cost nothing or even 5,000 rupees, certainly the former is rather a luxury for a rich people, than that which is suited for a poor one.

P. goes on to say a state carriage and four could not carry so cheaply as a bandy and pair of bullocks. In the first place we may safely say, neither can a Railway, for we are quite certain that the principal part of the goods would not still go by the Road, if upon the whole it were cheaper to send them by the Railway, for no man whether black or white has a preference for paying more rather than less. But of course the effect of thus talking of Bandies and Bullocks, is only to keep out of right the real point at issue. The question is not whether after having incurred this monstrous expense, a Railway can carry one or two Pies cheaper than a bad road, but whether it was prudent to buy communications at ten or a hundred times the price that we might have obtained them for, and which when we have got them *totally fail in the essential object of communications, viz. to carry cheap enough to answer the purposes of the country.*

P. proceeds to speak of the profitable investment of Capital in common manufactories; but how that can help him in his earnest support of unprofitable investments does not appear. If *P.* could show that a lac of Rupees laid out on a mile of Railway actually yielded 20 or 30 per cent., it would certainly support his side of the question.

P. then accuses us of giving the late and not the present returns of passenger traffic on the Madras Railway. Had we put down the present numbers, the rapid diminution of passenger traffic on the less important lines would still have been very palpable. It would have stood thus :—

Calcutta...	...500,000
Bombay...	553,000
Madras...	...350,000

But we were taking both prices and numbers as they were given in the Report upon which the *Friend of India* commented. The present increase of numbers on the Madras Railway is owing to a very low charge, half of what it was before, and involves a new calculation altogether. It must be remembered that this charge is *one-fifth of the average charge for Passengers in England.* Now if we are under the necessity of reducing the fare to one-fifth of what it is there, we need hardly ask what possible chance there is on this ground alone of Railways paying in India, when in England with five times the charge, they only pay on an average four per cent. We have not yet heard the result of this reduction in the nominal profits. One of the Railway officers calculates the effects at something like this :—

	P.
Charge on one passenger before...	4
Actual cost of conveyance exclusive of depreciation ...	1½
Nominal Profit	2½

Charge for proportionate number now, 2½ at 2. P..	5
Actual cost of conveyance at 1 P.	2½
Nominal Profit same as before... ...	2½

If this is a correct estimate, the additional number will be accommodated, and at half the former rate, without any loss to the Railway, a notable instance, if real, of the wholesome interference of Government.

P. again says, "you speak of the traffic near Calcutta, *as if it had attained its maximum.*" What are we to conclude respecting our opponent's side of the question, when he is thus as it were driven to put words into his adversary's mouth which he never uttered. This is never done but when the words that are spoken are unanswerable. What we did say was, "we have no doubt the traffic will continue to increase" on the lines now open, but we are quite sure that as the lines extend into the unproductive parts of the country, the *average* will decrease, as it has already done in Bombay, and as we see it does on comparing the different lines now open.

P.'s comparison of the water of a river to the traffic of a Railway is certainly fallacious. If he could force every poor Ryot that travels 10 miles in the N. W. Provinces, to continue his journey to the sea as every drop of water that enters a branch of the Ganges does, his illustration would answer, but as not 1 in 100,000 would perform the whole journey, the river won't help the Railway a bit. The *traffic* on a river would indeed in a small measure bear the illustration, because a very large amount of goods *can* afford a long water carriage, as we see on the Ganges itself and other rivers. As we have before stated, it is now clearly ascertained, that even in wealthy countries, the proportion of long traffic on Railways is very small, and that Railways are almost entirely supported by the short local traffic. This is one of the great fundamental principles in Railway transit, and can never be lost sight of without entirely falsifying our calculations. The grievous mistake of conveying our Railway, for the first hundred miles, entirely out of the line of the population, and for its whole length clear of every town, arose from forgetfulness of this first principle. It was imagined that there would be a great traffic in long distances, and even from one coast to the other; if there is, it will contradict all experience in every country where Railways have been tried.

P. then finds fault with our supposing that the bare cost of conveying a person will be not less than two pies a mile, and supposes that we made a mistake about it. But the mistake is his own. We see no reason to hope from the calculations given by the Railway Engineers, that the cost including depreciation and every thing, even where great numbers are carried, will be under two pies and certainly on the average of the lines, including so much with a mere trifle of passenger traffic, it will be more than that.

In England the bare cost is given by the American Deputation, at 4½ pies per head and per ton, supposing the cost of the two to be equal, but as the numbers of each carried by the respective trains is the same, and the passenger trains travel faster than the goods trains, probably the cost of passengers is rather more, and not less than 5 Pies a head.

In America the bare cost is given by the same authority at 6¼ Pies per head and per ton. The Indian Engineers are therefore probably greatly under the mark in their calculations of the cost of conveyance.

We think it well to go entirely through our respected correspondent's letter, remarking seriatim upon every paragraph, that it may be seen that we do not wish to avoid any point he touches upon, and we therefore trust our readers will have patience with us, though it will yet take two or three papers to complete our reply. We cannot but hope that this discussion will help to bring matters into their true light. It is evident that our correspondent says all that can be said on that side of the question, and we feel sure that a large majority of our readers will be satisfied with our facts and arguments. It is indeed undoubtedly *the* question in the material progress of India, whether Waterways, or Railways are the kind of Works suited to the circumstances of this country.

(*Article from the Madras Times, January* 27.)

We return to the consideration of *P.'s* second letter on Railways.

He proceeds to remark on our showing that the important item of depreciation is omitted from the accounts. But strange to say though he writes a paragraph *about* depreciation, he does not say one word to show that we were wrong in insisting upon an allowance being made for it in the present accounts. He merely says, that after a series of years, the Railways were kept as good as new by repairs and replacements. But what has this to do with the case. If after a series of years these accounts become normal and are included in the ordinary expenditure, of course the amount will then be honest and correct. But how can this possibly affect the question of the present Indian Railways where everything is at present new, and there is no expense whatever, no replacements and heavy repairs. What *P.* had to do was to show that the present expenditure did include depreciations, but he says not a word about this.

This matter has been clearly put in an article in the *Bombay Times* on their Railway, which we will quote:—"So that the net profit arising from the traffic for the half year amounts to £25,400, which upon a Capital outlay of £1,430,000, would yield a dividend at the rate of 3½ per cent. per annum. But there is no provision made in this amount for a renewal fund, *the line and stock being left to accident to renew themselves.* Nor is any account taken of the establishment charges of the Home and Indian Offices, which we find to be as follows:—

	£
Home Office charges, ...	3,500
Passenger Monies, &c...	1,060
Indian Office charges, ...	2,700
	£ 7,260

Upon what principle this charge is omitted it is hard to say, but it is clear that if the Revenue accounts were made to include it, as they assuredly should do, and a proper renewal fund provided, the so-called profit of £25,400 would almost wholly disappear.

	£
Renewal fund 2½ per cent.	17,870
Establishment charges	1,280
	£ 25,150

We have not overlooked that certain deductions are already made in the accounts under the head of repairs, but let the public judge of their sufficiency, bearing in mind that the line and stock have cost 1½ millions sterling. They are as follows:—

		£
Repairs	of Engines	1,700
Do.	of Carriages...	900
Do.	of the Line	2,800
		£ 5,400

We say that to regard such an outlay as representing a six months depreciation of a line and stock in this climate costing 1½ million is simply ridiculous. We have amply shown in previous issues, the need of a renewal fund, and no reply having even been attempted, we shall not weary our readers with a renewal of the subject. The report shows conclusively that when the *Times* asserted that this Railway was making no profits it asserted a fact."

A local contemporary adds the following remark upon this extract from the *Bombay Times.*

"Now though we were to admit that the so-called profits of the Company were real and not fictitious, we find *that they do not amount to ⅓ of the sum which is being annually added in the shape of* 5 *per cent. interest to the cost of the works.*" The same journal concludes with this remark:—"the returns from the Railways we believe are sure, but then they are remote, and the wisdom of providing this wretchedly poor country with the costly communications which bind together the opulent cities and closely populated countries of the West, may well be called in question, while the crying wants of the country are water and 200,000 miles of cheap roads," and he might have added that even in the West they don't pay even a fair Interest on the Capital.

We may observe by the way that even these calculations of the *Bombay Times* entirely omit the cost of the Bhore Ghaut; if this were included as it of course ought to be, the account would stand thus:—

Cost of Line to Poonah, ...	£1,430,000
Do. of Bhore Ghaut, ...	800,000
	£2,230,000
Net profits of ½ year, ...	25,400
Deduct Renewal fund 2½ per cent. per annum on 2¼ millions,...	29,000
Establishment charges....	7,300
	36,300
Clear loss in ½ year, ...	10,900

or at the rate of 1 per cent. per annum, besides the 5 per cent. paid to the shareholders. And this on the line from Bombay to Poonah the second most important line in India, and before it touches the unproductive parts of the country. What will be the *profits* on the line from Poonah to Sholapoor and Bellary ?

P. next invites us to show any parallel of such an assumption as 2½ per cent. for depreciation and heavy repairs.

The following are taken from the Report of the American deputation to England:—

	£
Average cost of English Railways per mile.	40,000
Deduct cost of land and Parliamentary expenses..	10,000
£	30,000
Average cost of *maintenance of way only without that of rolling stock*...........£	260

or nearly 1 per cent. per annum. The Repairs and Renewals of Rolling Stock are not given in one sum, but they are shown to be 1¼ times the cost of maintenance of way, which would together make 2¼ per cent., upon £30,000 a mile. And it is evident that in the English Railways, a much larger portion of the cost is for tunnels, heavy embankments, &c. upon which the item of depreciation is very small, than in India, where such works are rare. On this account the proportion for Indian Railways could hardly be less than 3 per cent. without allowing for a more destructive climate.

Again in the New York Railways, which are evidently specimens of the best Railways of the United States, the average cost being £9,000 a mile, the maintenance of way is £200 a mile, or nearly 3 per cent., and the Repairs of Rolling Stock, ¾ of the former, or £200, total £460, or 5 per cent.

To which of these two the Indian Railways will most approximate can hardly be judged yet, but if we take the mean of the English and the best American Railways, it will be about 4 per cent., instead of 2½, as the *Bombay Times* and ourselves have allowed.

Whether this examination of the question of depreciation is wilfully "vague and indefinite" on our part, we submit to our readers.

P. then shows how he arrives at the conclusion that the Bengal line may pay 5 per cent. First he reckons it to cost 145,000 Rs. a mile. Then the Directors expressly say that even according to present estimates and with so small a rolling stock as 20,000 Rs. a mile, it would cost Rs. 145,000 *if made throughout a single track*, and without allowing for the accumulated interest, which is somehow or other to disappear without any body paying it.

We have seen that the estimated cost of Rolling Stock on the Madras Line with a traffic of 45,000 tons a year and 360 Rupees a day is 15,000 Rs. a mile; the proportional cost for a traffic, as supposed by *P.* of 1,300 Passengers per working day, and 1,030 tons of goods, or 320,000 tons a year, 3½ times as many passengers and 7 times as much goods, might be at least 4 times the above or 60,000 Rupees a mile. The actual cost of the Railway would then be—

Cost of single track, ...	Rs.	1,45,000
Add for ½ double track at 30,000...	„	15,000
		1,60,000
Accumulation of Interest at 16 per cent...	„	25,000
		1,85,000
Additional Rolling Stock...	„	40,000
Total cost per mile...	„	2,25,000

or just 50 per cent, above *P.'s* estimated cost of the Railways. It would thus require a traffic more than half as much again as *P.* allows.

Then to form a judgment of the numbers even as *P.* gives them. The passengers on the present line adjoining Calcutta are 500,000 per annum; the number supposed by *P.* to go the whole length of the line from Delhi to Calcutta, is 400,000, or only 1-5th less than those travelling on such a line as that from Calcutta to Burdwan. This supposes a profit of 1 P. per mile on each passenger; and as we have shown that in England each passenger costs about 5 P. and in America more than 6¼, we cannot but be under the mark in supposing them to cost only 2 P. in India. This would make a charge of 3 P. the same as at present on the Calcutta Railway.

So that even to meet *P.'s* estimated cost of only 1,45,000 rupees, there must be at the present rate of charge nearly as many travellers on the whole line of 1200 miles as now travel on by far the most productive 120 miles, and about 3 *or* 4 *times as many as now travel on the next most productive portion*, that between Allahabad and Cawnpore. He supposes next that the goods traffic will be 320,000 tons a year over the whole 1200 miles, the last return we have seen on the present line being 45,000 tons, exclusive of Coal, which is of course quite a local traffic, and cannot help us in estimating the traffic on the other parts of the line. And this absurd estimate of traffic requires a net profit of 3 P. a mile; we have seen that without depreciation the cost of transit on the Madras Line even of Railway material is 9 P. so that probably to cover depreciation and a profit of 3 P. the charge must be at least 14 P. or 4 times the *present cost* of water carriage *up stream*, without allowing for the reduction of cost by the improved steamers now coming out.

We come thus to the conclusion that

If the Railway cost ⅔rds of what it will cost—

If the passenger traffic on the whole were nearly equal to that adjoining Calcutta, and 3 or 4 times that on the next most productive portion.

If the *cost* of carrying the Passengers were only 2 P. while in England it is 5, and in America more than 6¼—

If the average quantity of goods carried on the whole line were 5 or 6 times what it is near Calcutta—

If the charge for goods were 14 P. or four times that by water *upstream*, with the old inefficient river steamers, &c., &c.—

Then the Railway would pay 5 per cent.

Is not this quite conclusive as to the suitableness of Railways to India, when the same money, instead of being so spent as not to produce the smallest profit, but much more probably a clear loss besides the 5 per cent. Interest, might have been spent, so as to yield at least 20 per cent. to the shareholders besides, at least 100 per cent. to the community generally.

If the above is all that can be said by the most strenuous advocate for Railways, with respect to by far the most productive line in all India, what are we to think of the wisdom of the Railway system for India.

(*3rd Letter signed P. in Madras Times, January* 28.)

Sir—I begin to think you are too much for me. The argument goes against me; for you have given to the public your remarks upon my second letter without giving them the letter itself. No array of facts—no power of reasoning can stand such logic as *that.*

To turn, however, to your articles of the 4th and 7th instant. Your replies to the several objections made by me to your former articles appear to merit little notice; but that little they shall have.

I said it was uncandid and illogical to assert that the statement in the *Friend of India,* that the Bengal line had hitherto cost Rupees 1,05,000 per mile, was " totally fallacious," because the Directors said, the line to Delhi would cost more. To this you reply " there can be no doubt the *Friend* was mistaken, &c." This is a new position altogether ; and you give no grounds for the assertion.

Perhaps you are not aware, that since the completion of the present open portion of that line, there have been heavy losses due to the Mutiny; and that there are peculiarly heavy works—such as the Soane Bridge—between Burdwan and Delhi. You have indeed, no excuse, unless it be your extreme anxiety to prove a particular case, for taking the cost of the Bengal line as the standard for that of Indian Railways in general.

Again. I said you erred in adding interest during construction to the Capital cost of the line. I say so again, but will be more explicit. When you state the cost of a Railway in these days, your statement has for its object, and you know at all events that its tendency is, to give rise to two processes in your hearers mind. The first is to consider that cost in relation to other similar works. The second is to consider it with reference to the probable paying prospects of the work. In either case, by adding to your estimate interest during construction, you are deceiving your readers. I pointed out that the adding of interest during construction was not usual; and instanced the only estimate I had before me that for the Bellary and Cuddapah Canal. Your reply to this is characteristic. It will provoke many a smile, but deserves no further notice.

My objection to the very absurd mistake you made about the Rolling Stock you get over with unusual prudence by saying as little as possible about it.

The next para. to be noticed (in your paper of the 4th) is that beginning " we must however add." You had much better not have added anything. You simply show how little care and consideration you bring to the discussion of the subject. The cost of Rolling Stock on a Railway bears no direct proportion either to the length of the line or to the amount of traffic. It must be obvious to any intelligent and dispassionate mind that the amount of stock on a short line must be relatively larger than on a long one. While, from the greater facility with which full loads can be obtained with a large traffic, a comparatively small increase to the stock is required to meet the demands arising from an increasing amount of work. Your calculation therefore is as usual incorrect, and your conclusion that the Rolling Stock required will cost £6,000 per mile is simply ridiculous.

And now as regards the traffic—the average traffic. Let me remind you that the fault to be found in your argument is your taking the average traffic *now*, on the present fragment of a line, as the measure for the future.

Who does not know that the traffic on a highway near its terminus is greater than the average on the whole line? that the water section near the river's mouth is greater than the average section throughout its whole course—or who requires to be told that the section of a tree's stem near the ground, is greater than the average section on its whole length? But are we therefore to believe that the section near its base, of the sapling you planted yesterday, is larger than the average section on the whole tree will be 5 or 10 years hence? And yet such is the basis of your argument as regards the Railway traffic.

The question of *pay*, or *not pay*, as applied to the Indian Railways, is one of the simplest kind. It is one on which any man of a clear head and dispassionate mind may form a tolerable judgment; but it is one that is susceptible of none but a practical *demonstration*. The question is simply this. Is the country capable of supplying? Is the Railway capable of accommodating such an amount of traffic as will make the line pay? On a line costing £10,000 per mile we should require £500 a year profit—say 14 rupees a day per mile. Divide this anticipated profit into 8 and 6 for goods and passengers, allowing 2 pies profit on a ton of the former—1 pie on each of the latter, and we should require 1,152 of the latter and 768 tons of the former over each mile of line; and this is supposing the whole traffic to consist of the cheapest class of goods and passengers. If the goods business greatly preponderates, which for some years I believe it will, it might be as 9 to 5, in which case we should require 864 tons of goods and 960 passengers daily to each mile of line to pay 5 per cent. I ask your readers again. Can the country afford this? Can a Railway carry it? and I do not think I indeed offer to answer the question for them?

Your statement that in England and America, the Railways are almost entirely supported by short local traffic is unsupported by any proof, and you have the advantage of books—records at hand and after all it means nothing—for what do you call short? What standard do you measure by? If the average be what you call short, is there no longer traffic to make that average what it is? Do you not know that the long traffic is that which necessarily pays best? In every country in the world, the average run of passengers will be short, compared to the length and breadth of the land. I need hardly say why, but this run will vary in different countries and on different lines according to the amount of population and the scale of charges: according in fact to the extent to which the masses are accommodated by the rail, and to the density in which these masses cover the face of the country. Cæt-par—the average run of the poorer classes here must be longer than in England. With "goods" it is otherwise, the transit of these on our Indian Railways will be over very long distances. Instance the Madras line according the last return (17th December)—(I wish you would sometimes quote chapter and verse for your statements)—the average distance travelled by a 3rd class passenger was 39 miles—that by the great bulk of the goods—70.

You then say "neither men nor goods can bear the cost of Railway transit for great distances or large numbers," &c. A most astounding statement! Every man who has ever thought on the subject knows that it is the large quantity and the great distances that cheapen the mileage cost of transit on a Railway—a principle which is well understood and practically applied in the management of every Railway in Europe. You wind up this para. with some wanderings about water earriages and steam boats, which, as they (interesting enough in themselves) have nothing to do with the general question of Indian Railways, I shall not further notice.

You notice my remark, that "you entirely ignore the tendency and capability of the Railway as creating traffic," and you add "to that we have unhappily (but don't be unhappy about it) too ready an answer at hand." Pardon me. I do not wish to be uncourteous, but this looks very like evasion.

Do you think the Railway has this tendency? If you reflect on the matter calmly, you can give but one reply to the question.

You dwell much upon the Railway having "totally failed" to absorb the old traffic of the common roads. Now, do you honestly receive this as a proof that a Railway which carries goods at 8 pies the ton mile cannot compete with the "old road," and has no tendency to create traffic? If Native Merchants at Bellary, Mysore, Coimbatore and Salem, have not yet arranged to change their old habits, to establish Agencies on the short line of Railway near Madras and to transfer their bandy loads there enroute to Madras, is this surprising? or any evidence against the value of the rail? Of how much of its traffic has the southern Coast Canal relieved the "old road" in that direction? Ride out some morning and admire the number of boats laden with the produce of the Southern Districts; or turn to the Northern Coast Canal, and ask how many bandy loads of Goods from Hyderabad or Guntoor pass down that long established and cheap line of Navigation. You will return home, not I hope a sadder, but I doubt not a wiser man.

You state in your paper of the 4th, "it is certain that the *present* prices for goods entail a considerable loss, and so it is expressly stated both by the late Consulting Engineer and the present in their reports that there was a loss (without depreciation) on all goods carried."

You are in a position if you desire to know the truth, to avail yourself of records, within a few minutes. I am not, and yet I (speaking from recollection) unhesitatingly deny the above. There was no loss on the Goods traffic during the half years ending 31st December 1858 and 30th June 1859, except on those goods which have within the last two years been carried by the Passenger (or fast) train. No loss on Goods was ever reported by the late Consulting Engineer. During the half years ending 31st December 1857 and 30th June 1858, following the introduction of mixed trains, there was a loss in the Goods traffic; since June 1858 there has been none, except as before observed by the Passenger trains, so that your statement "that the *present* prices for Goods entail a considerable loss" is unfounded.

If you will look at the Report on the Railway to 30th December 1858, you will see that there was a profit of 2·2 Pie per ton per mile on Goods by the 15 mile train. The total profit on Goods by the same train was Rs. 22,667-5-5. By the 20 mile train there was a loss of Rs. 3,984-9-0, and you will see from the Returns published in the *Fort St. George Gazette* since the month of August last that Goods are no longer carried by that train.

Whether the rail has a tendency to create traffic or not, you may learn from any intelligent native within call, who will inform you that thousands of his countrymen and countrywomen now avail themselves of the rail to make journeys that they could not make before, and the last official report of the traffic I have (*Fort St. George Gazette* January 6th) shows that during the week ending the 17th December there were 15,187 passengers and 61,027 Maunds of Goods booked, against 4,727 passengers and 32,688 Maunds of Goods booked in the corresponding week of 1858.

I see but two points demanding notice in your article of the 7th instant upon the same subject. The first being somewhat of a personal character, I shall dispose of as briefly as possible.

You take the subject of several paras ; the following " P. says that Railways carry cheaper than any other means," and again, " It was necessary to dwell a little upon the bold assertion that Railways carried cheaper than any other means."

You have deliberately created your own giant, and most elaborately and somewhat tediously destroyed him. I said nothing that could to an unprejudiced reader convey such a meaning.

I said " *In a country like this*, the Railways must do their work before they will pay, and this work is to carry men and goods cheaper, safer, faster than they ever yet have been carried," and again " by promoting the material interest of the people by carrying their produce 3 or 4 times cheaper and much more quickly and securely than at present." Writing as we are on the fitness of Railways to this country generally, I say again that no unprejudiced man, reading with ordinary care, could have misinterpreted this into an opinion that Railways carried bulky goods at a slow pace cheaper than could be effected by water.

Again you say, alluding to the number of passengers expected to follow a reduction in the fares " even with such great numbers, a large addition must be made to cover bare interest on 1 or 2 lacs of Capital per mile." One or two ! ! What are you up to £20,000 per mile already.

And you add " It is certainly very doubtful whether there is any real profit at all at the present price of 2 pies on the Madras Railway." It is a provokingly low charge for your agreement I confess ; and you have but one resource left and that it having come in your first article from "more than one pie" up to "nearly two" now, boldly to assert, in spite of experience and official reports that the cost will be quite 2, and that in fact there will be no profit at all. But what good can come of a discussion in which such random unreasonable assertions are to be made and laughed at.

The remarks in your paper of the 10th instant remain now to be noticed, and they will occupy but a few lines happily as they are chiefly about Rajahmundry, whereas, far as I can learn, there is no project of a Railway before the public.

You say " at this moment only a trifling amount of capital excepting what is forced on by the guarantee has yet been invested. The prodigious profits on river navigation (I should think so when Providence gives us the river free) have indeed now at length begun to convince the people at home," &c., and there is something about irrigation, navigation, &c., excellent things, but if there be any force in the argument drawn from the difficulty experienced in getting money for Railways without a guarantee, how is it that your first great work combining irrigation and navigation has condescended to start upon the same ground ? How is it that the Manchester capitalists with visions of cheap Cotton before their eyes have deliberately surrendered to Government all the profits they might have derived as a Company, for the improvement of the Godavery Navigation ?

One more quotation from your paper of the 10th instant will suffice for me, and I think for you.

You say " it does not appear how reducing the rates when the goods are now carried at a loss can ever make the Railway pay however much traffic it attracted." Here is displayed a want of acquaintance with first principles which must render all reasons on my side hopeless as far as you are concerned. I refer you therefore to the Post Master General, or to the respectable firm of Moses and Son, for a few " early lessons" in social and commercial science, and shall wind up with a few general remarks.

You wish, and your readers will wish to get at the truth, though after all the Railway in India is un fait accompli, and if those now under construction do not do their work satisfactorily, we shall have no more for some years to come: but you have not taken up the subject of Indian Railways pur et simple. You have mixed it up with one on which we might be better agreed, viz., Indian Railway Companies as the means of carrying out those works.

You have assumed £14,500 (say 1 or 2 lacs!!) as the Capital cost. Now let me ask (and you write as if your opinion on this point would be valuable) do you think a single line of Railway with Rolling Stock *should* cost that sum in this country? or what do you think it ought to cost? You don't like the question perhaps.

Such a magnificent work as a Railway laid down in such a poor undeveloped country as this has much to do before its financial prosperity can reach its climax. But, what great undertakings involving a large outlay of Capital ever pay at once? Those that do are certainly exceptions to a general rule. In a higher, and to us more important, sense, the Indian Railways (even the short line at Madras) are a great and demonstrated success. No one can mistake it. They are carrying produce at a rate 3 or 4 times below the ordinary charge throughout the country, and while doing this they are by the cheap and rapid conveyance of passengers, stimulating individual and social life among the people; quickening the national intelligence and promoting generally that stirring up of mind which is of greater importance to the people at the present time, than that cheap movement of cheap matter which you seem to think the one great source and spring of a country's well-being.

January, 16th. }
Recd. Jany. 25th. } P.

(Article from Madras Times, January 2, 1860.*)*

We trust our friends will not begin to fear from the appearance of *P.'s* third letter as a rejoinder, that we shall continue to reply and rejoin and lengthen the controversy beyond all bounds. We are highly satisfied with it having extended so far, and have no doubt that having thus far heard more distinctly than hitherto what can be said on both sides, those who perceive how essentially the future well-being of India will depend upon the kind of Public Works executed in it, will find some help in this controversy towards a right judgment in the case.

In all countries, the question what kind of communications are most suited to its wants and capabilities is a vital one, but it is much more so in India, than in extra tropical-countries, because it is mixed up inseparably with the question of Irrigation, on which the productiveness of this country is allowed by almost all to depend more than upon any other one thing, excepting, of course, peace. It is very evident that if one can combine Irrigation with cheap transit, it must be a point of the utmost importance to ascertain whether waterways will, or will not provide for the main desiderata in communication, or whether we are under an absolute necessity of making a second complete set of works for communication at an enormous expense, besides those which are now all but universally considered to be absolutely necessary in India to provide certain, abundant, and cheap food and other produce of the land. We trust that the importance of this question, which is suited to the wants and circumstances of India, Railways or Waterways, will be a sufficient excuse for our drawing a little longer upon the patience of our readers, by replying to one or two more passages in *P.'s* letters, and by adding a few more remarks of our own on some points which our correspondent has not touched upon, but which yet appear to us of great importance.

In the latter part of *P.'s* second letter he asks, "what have the water projects to do with the Railway? What has the Godavery to do with Salem and Bangalore?" We must say that we should have thought a man of much less acuteness than *P.* might have saved us the trouble of answering this question, but as it touches the very heart of the whole subject, we must try to give a plain answer.

First then, if waterways can be constructed at 1-10th the cost of railways, and when constructed can both produce cheap articles of food and export, and also carry them at 1-10th the cost of carriage by Rail, as they are now actually doing, it is quite certain that the parts of the country which were sacrificed to the Railways, must be content to see both home and foreign markets filled with articles at prices at which they cannot possibly supply them. It will be impossible for North Arcot to contend with Rajahmundry, nor even with Nagpoor in the Madras Market, when the waterways in that direction are completed. So also with the Dekhan. When the Irrigation Company have opened their line, produce from Poonah and Hyderabad will undersell in Madras those of North Arcot. They will be both produced and carried much cheaper. *Salem is directly and vitally concerned in the Godavery and the Kistnah.* So also with the South; 60 miles of Canal will unite that to Sadras with the South Arcot Canal, and open Madras to the produce of Tanjore, at a rate of carriage which the Salem Railway cannot afford. At this moment, the enormous surplus produce of Rajahmundry grown at so low an expense by means of Irrigation is pouring into Madras and Ceylon at prices with which North Arcot and Salem cannot contend. Last year 50,000 tons of rice were exported from Cocanada solely owing to the cheapness of production and of carriage by Canal to the Port. And again in consequence chiefly of the great production of food on lands so employed, 30,000 tons of oil seeds and other produce were grown on lands not needed for the production of food, and were exported.

Thus it is most certain that the Districts preoccupied by Railways and so excluded from Irrigation and waterways, will be grievously depressed, and find it impossible to contend even in near markets with distant districts favoured with Hydraulic Works. If *P.* had an estate in Salem and found he was excluded from the Madras market, in consequence of the cheap production and cheap transit of other districts much further off, he would not need to get somebody else to answer so simple a question as what had Salem to do with the Godavery. But secondly, they have everything to do with one another, inasmuch as the actual results from Hydraulic Works, show in the strongest light that it was complete delusion to suppose that we had no alternative but to spend one or two lacs of Rupees on a mile of communication. They show that we have within our reach a means of opening up the whole country to both goods and passenger traffic, at 1-10th to 1-50th of that cost. Were it not for the Godavery and other Waterworks, people might still be supposing that though the Madras and other Railways have totally failed to pay their Interest, yet we had no choice between them and the former dreadful state of things in India. They might have supposed that it was almost a necessity to play this desperate game of saddling India with a new burthen of two millions a year, in the vague hope that something or other might yet happen which should enable her to bear it, although already staggering under a load which our wisest Statesmen have yet failed to enable her to bear, so that hitherto we have had a continually accumulating debt. But now we have in Hydraulic Works, a palpable proof that we were not at all in such desperate circumstances, that we have it in our power to establish a system of communication which shall most abundantly meet every demand of our circumstances, works which will at once produce and carry, and cost so little and yield such enormous direct returns, that there is not the least difficulty in carrying them out at once in every district of India. The connection in this way also between Railways and Waterways, between the experiment in Salem and that in Rajahmundry, is of the closest kind, and we must not be surprised if the advocates for Railways show a little uneasiness when they are mentioned together. We may safely say, that the main cause why the Railways have been so far executed, was that the two kinds of works were under separate departments and were always considered separately, and when the real question was forced upon the authorities in a measure," all they could do was to protest against " adverse discussion, and refuse to hear the other side of the question, and to allow of a fair and full comparison of the two kinds of works.

Thirdly. There is a special connection between the two kinds of works, now that so much capital has been sunk in these unremunerative works, and that is, that Hydraulic Works offer the only prospect of enabling the country to bear this new and terrible burthen. Tanjore pays a Revenue of from 55 lacs and upwards, from double to six times what other districts pay, and Rajahmundry has increased in Revenue already 64 per-cent., or 12½ lacs of Rupees, owing to their Hydraulic Works, and there is no reason why every district in India should not produce a similar increased Revenue, if the same means were used; and thus we have before us a very plain answer to that question which report says has lately been so anxiously asked by the Secretary of State,—How is the Madras Railway to be paid for? And which must be asked shortly respecting all the others. We have no doubt that something may be done by lowering the Assessment, as has indeed already been effected in some districts; nay we do not see much reason to fear that by judicious arrangements in this line, the Revenues may be so much improved as to meet the new demand of two millions a year, but there seems to be abundant proof that what can be done in this way will not compare with what can be effected by Hydraulic Works. Sixteen districts treated as Rajahmundry has been, would pay the interest of the Railway debt, even reckoning only by what increase has already taken place in the Revenue, but when the water is distributed to the remaining land of the Godavery Delta, and the late Government orders to lay on a water-rate of three rupees an acre are carried out, the increase of Revenue will be at least 30 lacs, so that seven districts so improved would pay the whole interest of the Railway debt. There will indeed still be a loss, for if neither the Madras nor Bombay Railways are paying much more than their expenses on the present most productive part, as they certainly are not, when allowance is made for depreciation, there is no hope that when the principal portion, which will be comparatively so unproductive, is brought into operation, the receipts will equal the expenditure; but *that* loss will fall upon the Shareholders, and not upon the State.

There is yet a fourth point of connection between the Railways and the Godavery. The only thing that opens any prospects of Railways being rendered capable of paying for themselves is the increase of the wealth and general improvement of the condition of the people of India by means of Hydraulic Works. If the immediate neighbourhood of Calcutta cannot even pay the bare interest and expenses of Railways, and those of Bombay, Madras, and Allahabad will scarcely pay even bare expenses including depreciation, it would be long indeed before the great mass of the Railways would pay their interest, unless some help came from without. But if we can by some other means greatly alter the condition of the people, and raise them from their present abject poverty, they may perhaps within some moderate time possess means enough to enable them to pay for Railways on some lines. Rajahmundry is now selling by sea alone more than 40 lacs worth of her produce, above what she used to sell, (actual value), and if to this we add her saving by water transit, increased exports by land, and increase of produce consumed by herself, we cannot reckon her total increase of income since the Works were begun at less than 70 or 80 lacs a year, so that the district must be rapidly increasing in wealth. If this process were going on generally throughout the country, the prospects of the Railways would undoubtedly brighten considerably wherever they didn't come into direct competition with waterways.

P. next touches upon the point of the actual cost of carriage by improved rivers, which is also a fundamental one in the question, but we will not attempt to detain the attention of our readers longer to-day.

(*Article from Madras Times, February* 11.)

In the Railway investigation we come next to the main point of the whole question, ***the cost of transport.*** Wonderful it seems that before millions were expended, this fundamental point was not examined. The Railways were undertaken in order to ***create traffic,*** yet this inquiry at what cost can they carry was never made. We have seen innumerable papers on the Railway project, but not one of them contained a careful investigation of this point on which all depended, and we have to learn by experience that when the Railway has been executed, our present Governor states in his Minute of the 17th June last, "so far from creating traffic, the Railway has not even obtained the whole of the existing traffic between Madras and the places to which it has been opened," and the Governor General in Council says, "but it is a fact, which it is well to keep in view, that in the present state of things, *the shareholders are really not interested in the question, nor have they any clear prospect of ever being interested in it; indirectly, inasmuch as a Railway to which country carts are preferred for three-fourths of the goods carried from end to end of line, is of little public benefit, and directly inasmuch as it loses in the form of guaranteed Interest all the difference between the present profits' and those which would be available under a better system of management.*"

What can be clearer than that while all this discussion is going on about how to coax the traffic on to the Railway, there can be no question as to the work being "a complete mistake," as Lord Stanley termed it. Even if the Railways succeeded in transferring all the traffic from the Road, what advantage would it be? It is evident that the utmost they could do, would be to carry at some insignificant amount below the old rates, and consequently the benefit would be insignificant. These discussions are alone quite decisive; if the Railway could carry at 1-10 or even ¼ of the rates by road there would be no discussion. And if the Railways had an ample margin of profits, so that they could lower their charges, they would of course do so, till they had at least got possession of the present traffic. A new kind of communication, which after costing nominally 80,000 Rs. a mile, (really much more) leaves room for discussion about how to get the present traffic to go by it, is unmistakeably a failure, when it has been carried 100 miles, has been worked for 2 or 3 years and ends in a great main line of road, on which is concentrated the traffic of several principal branches.

What the actual cost of carriage by Railway in India is, is not yet determined. The late Consulting Engineer we believe made it 6 or 7 P. without depreciation, the present calculates the cost to be 9 P. for Railway material which is of course carried cheaper than goods generally. To this must be added at least 2 or 3 P. for depreciation. These rates are however both higher than those in England and America. The American Deputation reckon them to be about 5 P., in the former and 6 in the latter, including depreciation, but exclusive of interest. Allowing *P.'s* rate for interest 3 P. in addition to these we should have 8 or 9 P. Whether the cost will be higher or lower in India is not certain, but so far as the Madras Consulting Engineer's calculations go, it would probably be considerably higher, perhaps not less than 14 P. including interest and depreciation. But we must allow a much larger profit than 3 P. per ton per mile if the Railways are to pay their interest, for the traffic on an average will be only a small portion of that supposed by *P.* in his calculation for 3 P. viz., 400,000 tons a year, which he allows on the Calcutta line, costing as he reckons 145,000 rupees a mile. This however is quite sufficient to show that the hope of the Railways carrying at a cost that will answer the puposes of India is vain. We therefore *must* have some other means or the country cannot thrive.

Let us see what data we have respecting the cost of water-carriage. First we have in England for instance the coasting carriage for slates from the Menai Straits to London, as we have before mentioned 16 shillings for 750 miles, or 2 P. per ton per mile, including carriers profit, which we have no means of ascertaining. We have also Coals from Newcastle to London stated to be 6 shillings for 350 miles, or 1¾ P. without carriers profit; these are both without return cargoes. On the Erie Canal, worked with animal labour, 4 P. per ton, of which about 2 P. is toll, leaving 2 P. including carriers profit; this is for a distance of 360 miles, in a country where money is about ⅛th of the value it is here, and without steam power. On the Hudson the cost is much less than this. Now that the Erie Canal is enlarged for boats of larger size and worked by steam, there can be no doubt, that it will be worked at a much lower rate—those prices correspondent with ⅛ or ¼ P. in India, allowing for the difference in the value of money. In India we have the ordinary rate of hire for boats carrying stone in Rajahmundry, 3 P. a ton, for short distances of 20 or 40 miles. The actual cost is about 1 P., and the profit is therefore very high, owing to the rapid increase of traffic. Grain is usually carried at 5 to 6 P. a ton, for short distances; this difference is probably chiefly owing to the custom of the natives of detaining the boats so long, while the stone boats are loaded and discharged without delay. This is a very high rate, owing to the demand for freight having far exceeded the supply of boats. The *cost* of carriage is of course the grand point in judging of communications, not the charge. The question is what is actually expended. In what proportion the saving by a better means goes to the sender and to the carrier is of course a secondary question. If too much goes to the latter, the matter will soon be corrected by competition. It must be known also that this 1 P., actual cost, is with very small boats absurdly ill-suited to the Canals ; with suitable boats the same crews would convey fully double the tonnage.

Again in the Madras Northern Canal, shells are carried 45 miles for 15 Rs. per load of 18 tons, actual weight, or 3½ P. per ton ; including carriers profit. This also is with very ill adapted boats, and near Madras where labour is higher than in the interior. The charge for Salt carried 20 miles is 4½ P. and carried 10 miles 6½ P. including every thing—these boats also drawing about 2 ft. Allowing thus for

First, larger boats suppose 200 tons,
Secondly, boats of a suitable form,
Thirdly, worked by steam power,

Fourthly, for long distances of 3 to 600 miles, we cannot possibly be wrong in supposing that the goods can be carried for less than 1 P. with an ample profit, on improved rivers or capacious Canals. In fact down stream a steamer can tow so large a quantity that the cost is extremely low, and the principal traffic will always be downwards. The extreme low cost of fuel in most parts of this Presidency will be an important point. The cost on the Godavery is 1 Rupee per ton of wood, equal to 2½ Rupees per ton of coal. One of the Scinde Railway Company's boats of 200 nominal horse power and drawing only 2 feet lately tried in the Thames, used 1 cwt. of fuel per mile equal to 3 cwt. of wood, which would cost on the Godavery about 2 As. so that if she were towing 1,000 tons down stream, the cost for fuel would be only 1-40th P. per ton per mile.

But perhaps nothing will show better what the cost of good water transit is than the case of the Hudson Steamers, which we have before alluded to. They run at from 16 to 18 miles an hour, the same speed as the Railways, and carry 1st class passengers 160 miles for 1 dollar or 2 Rs., and at night this includes a bed; the charge being at the rate of 2½ P. a mile. So that a man goes on board at 7 P. M. goes to bed, and arrives at Albany at 5 A. M., having had his night's rest, and pays one fourth of what he would generally by Rail travelling at the same speed. This is quite conclusive as to the superiority of waterways, even if high speed were an important object. The above rate is not equal to ½ P. in this country, and it is certain that 3rd class passengers therefore would be carried in this country at less than ½ P. at ample speed. The cost of fuel there is just nine times that on the Godavery.

It is impossible from this example of the Hudson Steamers to escape this conclusion, that if we had either improved rivers or capacious Canals, so that we could use large steamers, we could carry both goods and passengers at from ½ to 1 P. a mile and run at any speed that we could require. If a boat can be worked at 16 or 18 miles an hour, charging only 2½ P. per mile in America, it is certain that a higher speed could be attained and still at a very small charge. But the Railways in India are only worked at 12 and 20 miles an hour. So that even if high speed were a great object, the Railways have no advantage, and to beggars such as we are, high speed is an object perfectly insignificant compared with cheapness. Can there be a question, which would be most advantageous to India, a railway carrying 1,000 passengers a day at 2 P. a head, at 20 miles and 50,000 tons a year at 8 P. and at 12 miles, or a canal or river that carried 3,000 passengers at ½ P. and at 12 miles, and 500,000 tons of goods at 1 P. and 6 miles. For we may be certain that if the charge were reduced to ¼ and ⅛, the traffic would be increased many fold. And when to this we add that the Canal or River navigation costs from one-fifth to 1-20th of the Railway, (and the former irrigates also), the superiority of the waterway is really incalculable. And as we have said, there is no occasion to suppose that the water way is worked so low as 12 miles when the Hudson* river has been worked for many years at 16 to 18 miles.

And in judging of the above charges in America, we must remember that the navigations there are closed for from 4 to 6 months in the year, so that a year's interest of works and stock has to be charged on 6 or 8 months traffic. If the Erie Canal was worked 2 pie per ton per mile in its former contracted state, without steam power, open only 6 months in the year, and with labour at about 1½ Rupee a day, how can we be wrong in expecting that rivers and capacious canals in India would be worked at less than 1 P., when

1st, They are open all the year.
2nd, Larger boats are used than at present.
3rd, Steam power.
4th, Labour at 2 Annas a day.

And again we have the actual *cost* of carrying stone on the Rajahmundry Canals, 1 P., with

1st, Short trips of 20 or 40 miles.
2nd, Very small boats.
3rd, Very ill adapted vessels.
4th, Human labour.
5th, No return cargo.

These boats carry about 25 tons, are worked by 3 men, and make the complete trip of 32 miles and back in 5 days. This at 3 As. per man per day is 45 As. or 540 P. for 800 tons carried 1 mile, or ⅔ P. per ton per mile only, besides the boat hire.

It must also be remembered, that the above Railway rates suppose European capital, energy and skill. When we see a long line of Steamboat Canal or improved river, systematically worked by a European Company with ample capital, and an enormous traffic, it is impossible to say what we may find the cost of traffic can be reduced to in India, but the above data are amply sufficient to show that it will be so low that even the cheapest articles, even building materials may be moved hundreds of miles, at an available cost.

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* A late Calcutta Engineer's journal contains an amount of the Hudson Steamers, and names more than one that run upwards of 24 miles an hour or 4 miles above the protest trains on the Indian Railways.

The Rajahmundry transit boats are another unmistakeable proof of the cost of transit by water. The charge is 1 P. per head, and the profits have been from 20 to 40 per cent. The last report was 40 per cent. and allowing 13 per cent. for depreciation, the available profit was 27 per cent., and as the boats are now let, the profits would be 12 per cent. more. This is besides very large profits to the lessees of the boats, shown by the eagerness with which they are taken.* With steam power and longer lines (the present lines are only 30 and 50 miles), the boats could certainly be worked at ample profits at ½ P., probably about ¼ of the bare cost by the Railway in India, 1-12th of the bare cost on those in America, and 1-10th on those of England. These prices are sufficient to show that *P.* is quite mistaken in supposing that there is anything astonishing in the "unparalleled spectacle of goods carried on an unimproved river at 1 P. per ton per mile." They are in fact at this moment carried on an unimproved river, in America too, and one open only for 8 months in the year at very little above that rate. On the Lakes also, goods are carried at from 1 to 2 P. in America.

Here for the present we must pause, resuming the subject in our next, when we hope to be able to dispose of the remainder of *P.'s* second letter.

(*Article from the Madras Times, February* 13.)

P. Goes on to say, "There are many things water-carriage cannot do which are essential to the progress of a people. It may carry heavy goods cheaper, but it cannot carry passengers, mails and troops at 30 or 40 miles an hour. It cannot and never did stimulate the mind and intelligence of a nation, nor tell upon its progress or wealth and strength as Railways have done." It is by such vague declamation as this that the delusion about

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* Computing boats have just been put on those Canals, charging ⅜th per mile.

Railways has been hitherto kept up. We must therefore try to analyze this Para. :—In the first place what have the rates of 30 or 40 miles an hour to do with the case, when even after having incurred the enormous expense of making the Railway, these speeds are so totally out of proportion to the wants and circumstances of the country, that nobody dreams of working the Railways at them. It is found that 12 and 20 miles an hour are so expensive, that they cannot clear the common roads.

The fallacy here consists in the words "a people; if such speeds are essential to the progress of any people, it is certain that they are not in India, nor even in America, where the usual speed is 18 miles an hour. Even in England, the American Deputation state that the average in the lines that had the fastest trains was only 26½ miles, and on the Midland 22⅓, and that they have not been able to keep up the speeds of their fast trains, that their speeds were greater some time ago than they are now. In America generally they state them to be 25 per cent. lower than in England. Nothing can be more certain than that a speed which is not essential in America is not essential here, and therefore saying that waterways can't carry at 30 or 40 miles an hour, has no more to do with the argument than to say that they cannot carry at 100. These speeds are not wanted, and the actual working of the Railways shows that all the Railway boards, the Government and the Consulting Engineers are agreed in considering them in fact impracticable in India, involving too much risk and too much expense.

When *P.* says that waterways "can carry heavy goods cheaper," as if this were all that they could do, his words are certainly not calculated to convey a right impression. They cannot only carry heavy goods cheaper, but passengers also at high speeds at ^{1} or ¼ the price that Railways can, and that at an outlay of capital of 1-10th or 1-20th of that required for Railways. With respect to the latter part of the para., it is most certain that waterways can and will stimulate India in a way that Railways cannot possibly do. Which would have the most stimulating effect upon a district, 50 lacs spent upon a single line of Railway 60 miles long, and carrying at 8 P. a ton, with the loss of all the Interest of the Capital, or the same money spent in

Irrigating 500,000 acres, with an increase of produce worth 75 lacs a year and that raised at half the former cost, together with 1,000 miles of water-way carrying at 1 P. and putting every village in direct communication with a home market and a port, the Capital also yielding a direct return to the Shareholders of 20 or 30 per cent. Will the two modes of proceeding bear a moment's comparison, as to their respective effects "in stimulating the mind and intelligence of" this "nation," at least. Which would "tell most upon its progress or wealth and strength."

P.'s following para. is of the same kind. He says that "the effect of the Rail in Belgium has been to draw away all the traffic from the Canal," &c. In the first place, we are not dealing with Belgium, but with India. It's quite possible that there are cases where Steam power on a Railway had the advantage over animal power on a Canal. Did *P.* ever try the effect of a Steam boat Canal on a horse Railway running parallel to it. The results would be certain. But much more; even in England there is not a Railway that would stand against a Steam boat Canal running parallel to it. If a Company cut a first class Canal, like the Erie in its enlarged state at a cost of about £12,000 a mile, ⅓ of the cost of a Railway, and worked it only at 12 or 15 miles an hour for 1st Class Passengers, and lower speeds to suit others, there is not a Railway in England with such a competitor that would pay its expenses. The main fallacy in this sort of statement, consists in comparing a communication having the enormous advantage of Steam power with another without it.

A director of one of the Staffordshire Railways gave us the following account of his Railway. When they applied for their Act, they took credit for all the mineral traffic on a Canal that ran parallel to it. When they had made their Railway, all the minerals continued to go as they did before, even in spite of Steam; they then purchased the Canal, but continued to work it just as before. They couldn't afford to carry its traffic by the Rail. *P.* also asks, "who were those who with a beautiful network of Canals, proposed and actually executed miles of Railway at £30 or 40,000 a mile, &c., who were they? I leave them to the tender mercies of your contributor." It is very merciful of him to leave them to us; had he left them to the hundreds of thousands of the ruined Shareholders, who were misled by them, they would have met with little quarter.

We will show them all the mercy consistent with our seat on the Bench. What has been the result? First the Capital so employed has been certainly the most unproductive in England. Many Railways return no dividend at all, some return 2, the highest 6 or 7, and the average of the whole 4 per cent. The Oxford Canal cost £2,500 a mile, and when part of it was enlarged and made fit for Steamboats, it cost about £6,000; the average of all the Canals in England is probably not at the utmost 1-5th, the cost of Railways, and had they been enlarged and strengthened and adapted for rapid transit like the Erie Canal, they would not have cost ⅓ of that of Railways, and would certainly have carried at ⅓ the charges on Railways and have yielded 10 or 15 per cent. to the owners. Let us consider the history of the Erie Canal. It was first cut on a very small scale wisely suited to the then circumstances of the country. Our intelligent Cousins know better than to set up their carriage before they had a waggon. Its first cost was £1,400,000 or £4,000 a mile. Some 20 years after, when by its means the country had been populated and enriched, it was enlarged. This was about the time of the introduction of high-speed Railways. Two lines of Railway were then constructed between the Coast and the Lakes, parallel with the Hudson and the Canal. The long continuance of the frost there closing the Canal for nearly half the year, made it essential, that some communications should be constructed which would be open the whole year. But after going to this great expense, it was still found essential again to enlarge the Canal, at an expense of some millions sterling, and this is now nearly or quite completed. We thus see that on a line on which there were already two Railways, and a Canal, it was still found essential "in the progress to wealth and strength of this nation," that a Steam boat Canal should be constructed, even though in a Latitude where the frost closed it for 5 or 6 months. The reason was that *after the fullest trial of the Railways, they could neither carry the quantities nor at the prices that was essential to the progress of the country.* The bare cost of the Railway carriage being 6 P. and that of the Canal worked by Steam boat 1 P., the difference of cost alone on suppose 4 millions of tons 360 miles, would *be 3½ millions Sterling a year;* but this is a very small part of the loss that the want of the Canal would occasion. Probably not 1-10th of this traffic could bear the Railway charge for 500 miles, so that but for the Canal, 9-10th of this would be stopped altogether. We have seen a Pamphlet, on Indian Communications by an American in which it is stated that not a bushel of wheat from the Missisipi has ever reached New York by the Railway.

Now if such an intelligent people as those of New York, found that notwithstanding the great drawback of 5 or 6 months stoppage of traffic every year, and after two Railways had been laid on the same general line, a steam boat Canal was indispensable, is not this alone sufficient to make us at least question whether India can do without waterways, and if they are essential simply as communications, how much more when they will irrigate and give us cheap produce, in addition to cheap transit. One of the late professional periodicals stated that one of the Railways on this line to Lake Erie is now all but bankrupt, and no wonder. But we have not been able to obtain particulars of the effect of Steam upon this Canal. There is no doubt that even in England, the occasional stoppage by frost is a most serious if not vital objection to their being dependent upon Canals, and this exonerates the projectors of the Railways in a measure, but it by no means justifies a general system of Railways even there on the scale they have been constructed, viz. at £40,000 a mile. We see by actual results, that excepting on a few first class lines such as that from London towards Paris, &c., even England with her enormous wealth could not afford such works, for she does not and cannot pay the Interest of their cost, whereas if Steam boat Canals had been constructed on the secondary lines at £12 or 15,000 a mile, and worked at 12 or 15 miles an hour, they would have paid abundant dividends, have carried at ¼ the rates of the Railways and consequently have accommodated 5 or 10 times the number of Passengers and tons of goods. Even there the large steamers running between London and Edinburgh are, or were, not long ago, full of 1st Class Passengers in the summer, although the voyage took 48 hours, and with all the drawbacks of risk, sea-sickness, &c., while the railway time was from 12 to 20 hours; what would have been the effect of a Steamboat Canal on the same line, carrying at half the cost of the sea voyage without its drawbacks and at higher speed? The Hudson river Steamboat transit is for both convenience and cost the perfection of transit.

The Postscript to *P.'s* letter is as easily disposed of as the rest. He asks how it is that the East Indian Railway is quoted at 1 per cent. premium and the Irrigation Company at ⅝th; the latter is on £1 paid, the other on £100. If *P.* had 100 shares in the latter on which he had paid £100, he could sell them for £160, or 60 per cent. premium. If he had £100 invested in a share in the former he could sell it for £101, or 1 per cent. premium.* There is no question about the profits of the Irrigation Company; they are to receive, besides 5 per cent., half the amount paid by the Ryots for the water, above the same 5 per cent.

We have thus carefully remarked upon every part of *P.'s* second letter. We have yet his third to notice, but it will not be necessary to go into such detail with that.

(*Article from the Madras Times, February* 18.)

We come now to *P.'s* third letter, which was written in reply to some of the things contained in our former papers. We certainly cannot return our correspondent's compliment, that what we have said merits little notice. We feel assured that all that *P.* says merits the fullest notice. They are the views still of a very large body, and five years ago were those of perhaps the whole community, excepting only a mere handful of individuals. We have indeed abundant proof that there is already a very considerable number who clearly see through the fallacies by which Railways in India were and are supported, but the number who are now entirely shaken in their former notions and are prepared to hear the other side of the question, and who want nothing but such an exposé as we have been giving of the nature of the arguments, by which they have been hitherto deluded, the number of such we are sure is enormous.

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* The price now quoted is 3 £ per share or 200 per cent. premium, and that with so large an amount of money in hand nearly ½ a million sterling that it must be long before any calls are made.

P.'s letters are in this way of the utmost importance and every word he says is worth notice. His letters put before us distinctly the sort of vague fancies that are floating unexamined in the minds of so many, and which till they are brought to some test appear to be sound and unanswerable, but which fall to pieces the moment they are touched by a fact. The sole difficulty hitherto has been to obtain a hearing for the other side; the views that were generally held were not allowed to be examined. This was curiously shown in the protest against "adverse discussion" made by a former Head of the Public Works Department of India.

There is only one thing that never makes men fear adverse discussion; the man who has carefully tested by a variety of ways his own views of a subject, and has fully satisfied himself that they will bear adverse discussion, always courts it; he wants others to be as fully satisfied about it as he is himself, because he knows that they cannot be depended on to stand firm when difficulties are encountered, if they have working in their minds unresolved objections. We feel that *P.* in bringing forward all that can possibly be said by an intelligent man who is well acquainted with the subject of Railways, is doing that for Public Works in India, which no friend to Hydraulic Works could do. For instance in this present letter, where he speaks of our meeting the *theory* that there is a tendency in Railways to create traffic, by the simple fact which we have before our eyes, that the Madras Railway after four years trial has, as observed by both our new Governor and the Governor General, so far from creating traffic, failed even to absorb the old traffic of a common road, and that not a very good one. As *P.* has no answer whatever to this, he endeavours to escape by simply saying it is an "evasion." There are very few indeed who will not be satisfied that the terming an argument, which consists in bringing a plain and notorious fact in answer to a theory, an evasion, is a surrender. If an ancient philosopher when stating that the world was flat, had been replied to by some plain man, I don't see how that can be when we see the mast heads of the ships first, he might in the same way, and no doubt would have said, that's an evasion. For whether ancients or moderns, men will not give up their own theories, even in the face of palpable facts. But then the bystanders, who are not committed to the theory, cannot but feel that one that cannot stand before a fact must be given up.

There is no need of theorizing about the tendency of Waterways to create traffic in India; in Rajahmundry, it's notorious that the traffic is 30 or 40 times what it was before the Canals were cut. Had a Canal been carried to Goriattam and so brought the jungles of the Ghauts within a practicable distance of the Madras Market, in respect of cost, the fact of the creation of traffic would have been as palpable as the opposite is now; a new traffic from Goriattam of 50 or 100,000 tons of fire-wood and timber would have left no room for arguing.

Nothing is now wanted but this sort of plain answer to the old theories, in order to satisfy a very large proportion of our fellow citizens, and the man who brings those theories distinctly forward is doing the best service he can to the cause of the material improvement of India. Many of them are indeed *felt* to be only theories by particular individuals. How many are saying what we lately saw in a letter from an old Officer of the Public Works Department in another Presidency, " What is doing now as regards Railways and Canals; are any changes to be made, or are we to go on as of old, spending money without getting any returns," speaking on *P.'s* grounds. How many more saying with another, " I don't expect much from the Irrigation Company's works, look at the returns from the Railways," speaking with reference to the investment of private funds. Others are saying with the owner of a limestone quarry in Bengal, " I only know that the Railways won't help me for they can't carry limestone." Thus multitudes are now finding by facts, that the Railways fail them each in his own particular case. What is wanted is to show that these individual cases put together prove the fact that the Railways fail to accomplish the object for which they are constructed. And when this is well established, we may be sure that people will begin to say, " But what can be done, that will really ' create traffic,' yield returns to Government or individual capitalists, carry the great traffic of the country at available rates," &c., and when they are shown plainly that there are Public Works which cannot only do all this, but literally without cost, because the whole cost will be met over and over again by their effects of another kind, that is, in providing cheap produce ; we may hope that the great mass of the people, all in fact who are not completely committed to Railways, will become willing to give up their old unprofitable theories, and accept of facts and profits instead.

But let us return to *P.'s* letter. He again, as in a former case, puts words into our mouth which we never used ; he says, we have "no excuse in taking the cost of the Bengal line as a standard for that of Indian Railways in general." There is certainly not such a matter as this in our remarks. When speaking in general of Railways in India, we said from 1 to 2 lacs a mile, the lowest is said by the Railway men to cost 80,000 Rs. for a single line (without accumulations of interest and with very small rolling stock) and the highest, 145 Rs. a mile for a single line and 175 for a double one, also without interest and with a very small rolling stock. We certainly didn't take 2 lacks for the "standard of Indian Railways in general." We must again observe that when an opponent answers what is not said, we cannot be wrong in concluding that there is a difficulty in answering what is said.

With reference to what *P.* says that in stating the real cost of the Railways, "we are deceiving our readers," we have a very good conscience. Most assuredly we should have helped to deceive them, if we had kept out of mind this accumulated Interest. And it is particularly necessary for comparison with Hydraulic Works, because the fact of their immediate returns is one of the great distinguishing features of that class of improvements.

Wherever Irrigation works have been carried on in this Presidency at least, the interest of the money has been a very small part of the immediate returns. They are not like a bridge which is of no use till the last arch is completed, or like a Railway of which we are told that the reason why it does not yield any return, is that only 100 miles of the most productive part has yet been worked, and that only for four years; the moment a river is embanked even for a short distance, or an Irrigation Channel cut to carry water even for a portion of the year, or a drainage canal led through a flooded tract, results are obtained, and thus the Interest is paid and much more while the works are in progress.

How can it be otherwise when the *cost* and *effects* of water are so disproportionate. The increase of produce by irrigating an acre is not less than 15 Rs. per annum, the cost of the 6000 cubic yards required for it, is when the works are executed on a large scale, about 4 or 5 rupees in Capital, including all the works in an extensive project, and of course there are parts of it that may be first undertaken of which the returns are far greater than the average. And this is especially the case in this Presidency, because from one end of it to the other, there are so many tanks and channels in operation which require nothing but additional water thrown into them to make them far more productive. There is for instance an Annicut across the Palar near Arcot, and many hundred tanks below its level, which do not water half the land they might do, and thus nothing is wanted but the intermediate channels, which would not cost half the sum named to supply 6000 cubic yards of water. So it was in Tanjore; there was plenty of water in the Colleroon, the distributing channels were all in use, nothing wanted to ensure a vast increase of produce upon about a million of acres, but the two Colleroon Annicuts; they were both built in three months, and before a year from their commencement was over, an increase of produce had been obtained far exceeding the cost of the Annicuts. So if the Irrigation Company turn the flood water of the Toombudra before the Annicut is completed, into the first 40 miles of the channel, which will require no heavy works of any kind, a large area may be irrigated, which would immediately make large returns, much more than the interest of all the money they are expending. The fact is, we do not easily realize the results of works of this kind, so urgently required and so suited to the circumstances of the country. Even if the Railways could carry the *quantities* necessary, and at 1-10th of their present charges, it would only be obtaining at a cost of

1 or 2 lacs a mile, what may be had for nothing, *for in Hydraulic Works the water carriage is only a trifle thrown into the bargain, the Irrigation paying many times the Interest of the whole Capital.*

P. again implies that we calculated that "the Rolling Stock bears a direct proportion either to the length of the line or to the amount of traffic," and says "your conclusion that the rolling stock will cost 6000 £ a mile is simply ridiculous." We have again to reply, that we nowhere calculated that the rolling stock would be in proportion to the length of line or amount of traffic. The Consulting Engineer of the Madras Railway states the cost of the Stock in use on it at £1500 a mile, with the insignificant traffic that is thus provided for; what the precisely proportionate cost would be for a traffic such as *P.* supposes, that is such as would pay the Interest of the Capital, we have no means of judging, but we cannot be far wrong in supposing that it will be four times that on the Madras Railway. We have shown that the traffic even at the high charges which *P.* approves, must be enormous to pay the Interest. We need not give those calculations again. The Directors are evidently quite right when they say, *only* £2000 a mile for rolling stock, that is $\frac{1}{3}$ more than the cost on this Railway, for a traffic many times greater 5 or 6 times as great, allowing the traffic *P.* estimates, at least 10 times as great, if we allow for such a traffic as would pay the Interest of the Bengal line; and this supposes of course that the Railway would carry at prices that would induce the great traffic of the country to pass along it which it certainly cannot, and also that a double line could carry such enormous numbers of Passengers and such a weight of goods, which we also know it could not.

Again, *P.* charges us with saying that we take the average traffic *now* on the present fragment of a line as the measure for the while. We can only repeat that we expressly said the traffic would no doubt continue to increase on the portions now open. We have abundant proof how little the traffic of a long line of Railway is affected by its length. In England a few years ago, the average distance travelled by Passengers was 13 miles. In the United States, the average distance on the whole of the lines of a list given in the Commissioner's Report, on the Railways of New York, is 45 miles, two of the lines being 500 miles long. This low average shows that even there, the numbers who travel great distances are comparatively very small. And the state of New York gives an unusually high average, because it is the highway for emigrants from Europe to the valley of the Missisipi, so that the proportion of through Passengers, is far above the ordinary, and this is one reason why the average distance is so much greater than in England, The results of the Railways everywhere are the same in this respect, and prove a fundamental principle, viz. that Railways are not supported by the terminal but by the local traffic. How very few must travel 500 miles in New York, when the average of all is only 45 ; and so in England, where there are lines there of 2 or 300 miles, how few must the long distance passengers be, to reduce the average to 13. We cannot possibly be mistaken in concluding from this that the numbers travelling on the portions now open here will not be very greatly increased by lengthening the lines, and certainly not so increased as to make the average of the whole anything like the present traffic.

The total passenger traffic for instance between Vaniembady and Salem cannot be a quater of those on the present line, and we cannot suppose that a quarter of those will go on to Madras, but if they would the numbers would stand thus :—

	Passengers.
Average number between Madras and Vaniembady at present,	800 per day.
Between Vaniembady and Salem ¼ of these,	200 „
Of whom go on to Madras ¼ or	50 „
Average between Madras and Vaniembady when line is open to Salem,	850 „
Average of whole line to Salem about,	600 „

This is something like what will be the consequence of extending the line as to the average of passengers. But here we must quit the subject for to-day, intending to pursue it in future issues.

(Article from Madras Times, February 27.)

We resume this morning the consideration of *P.'s* objections to our views on Indian Railways, commencing with his calculation as to what would pay an interest of 5 per cent. on a lac of rupees a mile. We would premise that if P. wishes to support his side of the question, it is very unwise to make such calculations, because plain people will certainly say that Works which require all this calculation and argument to prove that they may possibly return 5 per cent. won't do for us. We must have better returns than this. To lay out money in India that *may* perhaps yield 5 per cent., when the *Chairman of the Calcutta Railway* told a late meeting that he felt sure the *Steamers* they were sending out would yield 100 per cent., will appear to many a palpable mistake.

However he proceeds to give a traffic of 864 tons, and 960 Passengers a day, as a sufficient traffic to afford this profit. But he supposes 1 P. profit on each Passenger and 2 on each ton of goods. In the first place, if we allow for depreciation, this would require the present rates to be raised. Even taking *P.'s* quantities, what are we to think of an estimate of a traffic in Passengers for the average of the whole line being equal to the present traffic adjoining Madras, (much exceeding the last returns), and 7 *or* 8 *times* the goods traffic. By late returns the goods traffic seems to be about 100 or 120 tons a day; who can suppose that the average of the whole line to Beypoor will be 864 within any reasonable time. We are quite agreed with P. in leaving this to our readers. But we must continually remind the latter, that if it were shown that a Railway would yield 5 per cent., nothing is proved; what he has to prove is first that a Railway will do the work for which it is constructed, that is, that it will carry the great traffic of the country at such a charge as it will bear, as will really create traffic, and secondly, that in doing this, it will yield a greater profit than any other way of effecting the same object. The question is not whether a Railway will pay bare Interest, but whether it will answer its purpose, and be a more judicious mode of spending our money than any other. *P.* has not only to prove that Railways will pay 5 per cent., but that they will carry from 1 to 5 millions of tons of goods a year at 1 P. a ton a mile, besides 1 or 2,000 passengers a day at $\frac{1}{2}$ P., and then that they in doing this will reduce the cost of *Produce* to $\frac{1}{8}$ of what it is, and return 20 or 30 per cent. if required to the Capitalist. So that *P.* has a heavy task before him if he wishes to satisfy the Public.

P. next says that our statement that Railways are almost entirely supported by short local traffic is unsupported by any proof. This seems a remarkable assertion in the face of the notorious facts we have already adverted to, as to the average distance travelled by each Passenger in England and America. *P.* gives the average of the distance travelled by each Passenger at Madras at 39 miles, on a line 96 miles long. Surely this is quite sufficient to show that the numbers travelling the whole length is comparatively few. But it is very remarkable that *P.* did not observe that even this average is greatly increased by the strange mistake that has been made in the line of the road. On a line which scrupulously avoids the population, the proportion of through Passengers is of course much greater than it would be if the Railways had been made for the people and not for the Engineer.

Perhaps they have got a cheap Railway by this curious contrivance, but they have got one that carries much fewer passengers than it might have done. Had the road been made for the people, it would have run through the Mount, Palaveram, Wallajabad, Conjeveram, Wallajahnugger, Arcot, and Vellore, instead of unaccountably running along the water-shed of the country, not touching one large village even, and only approaching one place of considerable resort and that only a place of resort on three or four days in the year. Had the road been carried through the population, the passenger traffic would certainly have been more than double what it is, but the average distance would have been about one half, or probably about the same as in England 13 miles. For the same reason the average of 70 miles is very high for goods on the present line. If the Railway had been carried along the proper line, of course a large portion of its goods would have gone to the intermediate towns. The average distance for goods for all England *was* 24 miles, we believe in New York it is 100, where we have said the through traffic is unusually great. Probably on this line when completed, the average would have been about 60 or 70 if the road had been carried through the towns; what it may be, now that the first error has been persisted in, and every town from Madras to

Beypoor carefully avoided, it is not easy to judge, as we only know of one other line where so extraordinary a mistake was made, and in that case loop lines have we believe been made to some of the towns. Of course if a Railway is carried through a desert, the terminal traffic will predominate. This point requires the more to be dwelt upon, because it is not only so generally misunderstood by the public who have not time to inquire particularly, but as we see by the instance before us, sometimes even by Railway Engineers themselves. If there is one fact that all Railways concur to show, it is this, that the short traffic is the principal traffic. Indeed the public, had they been consulted, would hardly have borne such a mistake as has been made. There is not a shopkeeper at Wallajahnugger, nor an Ensign's wife at Vellore, who would not have perceived that the Railway ought to have gone through those places. We have no doubt that even now a Railway through the towns would pay better than the present even if it were saddled with the cost of the roadway, &c. of the existing line. We have been informed that one of the Government Railway Engineers estimated that an additional Railway on that line would pay 3 per cent. *real* profits, and if so, it would probably pay 5 or 6, if the present line were abandoned.

P. next calls our assertion that men and goods cannot bear the cost of Railway transit for great distances, " an astounding statement." It may astonish any person who was not before aware of it of course, but to a person so conversant with Railway matters as *P.*, it seems strange that it should be new. He proceeds to say " that large quantities and great distances cheapen the mileage cost of transit on a Railway." How this helps to disprove the fact above stated is not clear. That the great traffic of any country is not generally carried by Railways is a notorious fact. Where there is water carriage it goes by water, where there is none the traffic is confined to a small portion of what there would otherwise be. It is only a small portion of the traffic that now goes by water, which would bear the cost of land carriage. The returns of the State of New York show a through traffic of 26,000 tons a month in 1855 on the two Railways between the Lakes and New York; the traffic on the Erie Canal was in 1853, with animal power, 300,000 tons a month while the Canal was open; we have only heard that there has been an enormous increase since the enlargement of the Canal, probably not less than double, or twenty times that by the Railways. The distance is 520 miles, the charge by rail about 1 A. or 32½ Rs. per ton; by Canal it was, without steam, 4 P. or 11 Rs. per ton; of which 5½ Rs. was for tolls. No doubt the cost of transit is now reduced to about one half or 1 P. besides toll, being a total charge of about 8 Rs. Now nothing can be more obvious than that of the whole traffic, a very large portion which can bear a charge of 8 Rs., not ⅛ could bear one of 32. Goods which would yield a profit of 24 Rs. a ton on one line, could not be moved by the other. It seems very strange that we should be obliged to explain such things as this. Suppose for instance there were a difference of cost in the price of rice in Rajahmundry where it is now usually, cheapest, and in Malabar where it is dearest, (a distance of 800 miles), of 30 Rs. a Ton and that 32 Rs. a ton, was the cost of carrying it by Rail at 8 P., it is evident that not a ton would be moved; but if the cost by water were 1 P., or 4 Rs. in all, there would of course be immediately a traffic of perhaps 1 or 200,000 tons; and so with other things throughout the country. We may safely conclude that a reduction of cost of from 32 Rs. to 4, or 8 to 1 would increase the traffic much more than in that proportion. So from Allahabad to Calcutta the present rates are we believe about 2½ P. a ton a mile, or about 11 Rs. for 900 miles; if the river communication were stopped and the Railway carried at 8 P. or 30 Rs. for suppose 720 miles Railway distance, of course about 4-5ths of the traffic would be unable to bear the additional cost, and if the waterway were improved, and the cost reduced to 1 P. or 4½ Rs. in all, immediately three or four times the present quantities could afford the cost. At a cost of 8 P. a ton a mile, by far the greater part of what ought to be moved will remain just as it is, one district languishing for want of purchasers at remunerative prices, and another for want of sellers at prices they can afford to give, while if the cost were reduced to 1 P., the whole country would immediately undergo the change that we see in Rajahmundry; grain and even things of much lower value would at once be set in motion and the whole country thrown into a state of activity curiously contrasted with the present torpor. Taking the cost of grain at 40

Rupees a ton, we see that Railway carriage would make it: 80 Rupees if carried 1000 miles, but water carriage at 1 P. would only make it 45 Rs.—and with building materials, &c. the difference would be far more obvious.

P.'s next paragraph pointing out that the Northern and Southern Canals have not taken off the traffic from the common roads, certainly requires attention. It is we allow, quite a legitimate argument, and requires an answer. The answer is mainly that both terminate at points entirely cut off from all roads. The Northern ends at Doorgoorauzepatam, 12 miles from the nearest point of the great Northern road, and 40 from Nellore, and there is not even a practicable bandy track on either line. We believe however that one line is now being opened. The Southern Canal ends near Sadras 1½ mile short of the Palaar, the opposite bank of which is about 12 miles from the nearest point of the South-Western road, from which it is thus cut off by first 12 miles of land without a road, then by a mile of tidal water and again by 1½ mile of land. Of course it is quite impossible that the South Western traffic can get to it. Its North end also is on the Adyar 6 miles from Black Town. This Canal also does not run parallel with the road, which runs South West while the Canal runs South. These are obvious reasons why the traffic from the Northern and South Western roads has not been transferred to them. The Southern Canal has in fact been almost entirely thrown away, and yet strange to-say on this insignificant line the Passenger traffic is from 2 to 300 Passengers a day, almost equal to that of the Railway before the reduction of its prices, although it leads to the whole of the N. W., the W. and the S. W. of the Presidency. If the Northern end of the Canal had been continued to the Kooum, and its Southern only to the Palaar, with a road connecting it with the S. W. road at Carungooly, the Passengers would probably have been 2,000 or 3,000 a day.

The Railway leads from Black Town to the Westward and ends on three great main lines of road; the Canals have no connection whatever with any road, they are isolated works, of course accommodating only the local traffic; yet even thus the goods traffic on the Northern Canal far exceeds that on the Railway. But there are also other differences; the Railway is worked by

Steam, the Canals by human labour; the former by a European Company with enormous means and English skill and energy. The Canals only by individual natives, without capital or knowledge; their boats even are totally unsuitable.

The mention of these Canals leads us to point out the absolute necessity of having English Companies for Public Works in India, at least for some of them. Let us take the case of the Southern Canal. Is it possible that a Company whose returns absolutely depended upon the Canal being used, could leave such a work unfinished, that is unconnected at either end with any suitable terminus. After spending 2 lacs on 40 miles of Canal, such a body could not possibly leave 1½ miles uncut, so that boats could not land their goods on the South side of the Pallaur, and no carts could get to the end of the Canal. In this way, this important work has been left almost useless for four years. Only 60 miles of extension are wanted to connect it with the South Arcot Canal, which would give access to the very heart of Tanjore, and for several months in the year to Trichinopoly and even the Coimbatore district. All this incalculable benefit is lost for want of an expenditure of 5 or 6 lakhs of rupees.

So also with the Northern Canal; the Government were urged to open only a fine weather track for bandies for 12 miles from Doorgoorauzepatam at a cost of 4 or 5000 rupees, but it was refused although the additional traffic from the Northern road would have paid 5 or 10,000 a year in tolls. An extension of 40 miles also would have completed the line to Nellore, and terminated on the Northern road 110 miles from Madras. From these examples, it is most obvious how superior the management of a Company whose own returns absolutely depended upon the works being completed, would be to that of a Government, the members of which don't feel themselves the effect of such neglect, and who also have so many other things to attend to.

(Article from Madras Times, March 12.)

We continue our remarks on *P.'s* 3rd letter, *P.* denies our statement that a loss on goods was reported by both the late and present Consulting Engineer. If we were wrong in stating that the late Engineer reported this, we must apologize and acknowledge we have made a mistake as to who was in the Office at the time. *P.* states, "that in the half years ending December 1857, and June 1858, there *was* a loss in the goods carried." We conclude he means as the case was reported by the then Consulting Engineer. But that since that, in December 1858, a profit of $2\frac{1}{8}$ P. per ton per mile was reported. We are aware that such a profit has been stated in some of the half yearly reports, but this is without allowing for depreciation.

Since we wrote the remarks in question, we have sought again for information from different quarters on this, which is indeed in one point of view, very material, and we must acknowledge that we do not feel quite certain that the Railways cannot carry at the present price of 8 P. a ton a mile, including everything, but we see no reason to believe that they can carry goods generally materially below that. We say, in one point of view, because it is only where we cannot have waterways that the question is of the smallest importance. We *have abundant data to show that Railways cannot carry at the low rates absolutely required in India, and that waterways can.* On this, which is the real point, there can be no possible doubt. With respect to the proof that Passengers can create traffic, drawn from the number of Passengers, we are satisfied that the Railway still does not carry nearly all the Passengers even that travel on the Western line. But if it did, we still urge that the first question is the carriage of goods. The increase of travellers, while the produce of the country cannot be conveyed to where it is saleable, would be a small matter. A farmer no doubt would like to take his family to see their friends, &c., but his main point is to sell his produce.

P. next objects to our saying that he asserted that Railways carried cheaper than other means, and quotes his own words that, "*in a country like this*, the Railways must do their work before they will pay, and this work is to carry men and goods cheaper, safer and faster, than they have ever yet been carried," and thinks that no unprejudiced person could misinterpret this into an opinion that Railways carried bulky goods at a slow pace cheaper than could be effected by water. To this we have no reply but that even now we do not see the point of his argument.

P. next asks how it is that Irrigation Works cannot be executed by private Companies without a guarrantee. At present there can be no doubt, that the main reason is, the failure of the Railways as a speculation, the tendency of which is of course to confirm men's doubts about the possibility of investing money profitably in Public Works in India under any circumstance. A gentleman said lately, I do not expect any profits from the Irrigation Co.'s Works, and upon being asked Why? he said, Look at the Railways. We cannot be surprised that most people, when they see so grievous a failure in works that have been urged upon the public by leading men in almost every branch of the community, and who therefore concluded that they were those that were most calculated to meet the circumstances of the country, that they should doubt whether there are any others that would be profitable. How different the case would have been if the Hydraulic works that have yielded such large profits to Government, had been in the hands of private Companies, so that a multitude of people both in England and India would have been now receiving dividends of 20 or 30 per cent. This is one of the terrible evils arising from millions being spent upon works not suited to the circumstances of India; they are at this moment the great obstacle to the prosecution of works absolutely essential to the progress of the country.

To such assertions as *P.'s*, "In a higher and to us more important sense, the Indian Railways (even the short line at Madras,) are a great and demonstrated success," we can only say that we conclude that *P.* is neither an Indian financier who has to provide the interest for them, nor a shareholder, fearing that they will not even pay their expenses so that he may not get even his 5 per cent., nor a Ryot who has to pay the additional taxes called for in a vain attempt to meet the Interest of those forty millions, and at the same time cannot sell his produce on account of the great cost of land carriage, nor a Merchant nor a Shipowner. &c.; *P.* must probably be a first class passenger who finds it very convenient to travel at 20 miles an hour at 1

Anna a mile, while others pay the Interest of the Railway Capital and the rest of the cost of his conveyance. If however a *nominal* profit of 2 or 3 per cent. and a probable actual loss as on our Railway, a traffic on the most important line in the Presidency of 30 or 40,000 tons a year, and 300,000 Passengers and *no effect on production or Revenue*, is a "demonstrated success," what shall we call the results of Capital expended on waterways, which cause an increase of Revenue of 60 per cent. upon the former Revenue, a return of 30 or 40 per cent. on Capital, an increase of Exports 5 or 10 fold, of produce equal to 2 or 300 per cent. on the Capital, which produces a traffic of probably equal to 200,000 tons a year in a part of the country quite away from the first cities and where before the whole traffic was quite insignificant; which admit of a carrying Company making so large a profit by Passengers at 1 P. a head a mile, as 30 or 40 per cent. &c. We may also mention that rival boats are now working to carry on the Godavery Canals at ¾ P. a head.

We have omitted to remark on a few of the paragraphs in this 3rd letter of *P.'s* but they referred to points which we had fully answered in our previous remarks, and it seems unnecessary to prolong this discussion beyond all bounds. With this exception we have remarked seriatim upon all *P.'s* views of the question. But we must again urge that though we have done this only to show the plain answers than can be given to the common notions respecting Railways in India, the question does not in the least depend upon whether Railways will pay 5 per cent. or not, whether they can carry goods at 6 P., or 10 P. a ton, and passengers at 1 P. or 2 P., whether they cost 1 lac or 2, &c.; all these points are comparatively quite insignificant.

The first question is, have we no better way of improving India than by these Railways. Are we bound down to spend even 80,000 Rs. a mile for communications that when constructed will not carry at less than 6 or 8 P. a ton a mile, that have a hard struggle for years to beat even imperfect common roads, that certainly will scarcely pay for themselves, even on lines of greatest traffic, *that* adjoining the Capital cities, and that as certainly will not help production. And on the other hand, have we not abundant proof that water-communications will cost from 1-20th to ¼ of that, will carry any quantities of both Passengers and goods at a cost little more than nominal, that will not merely pay Interest, but afford large dividends to shareholders, set the finances to rights, and so prodigiously increase and cheapen production as to give India unprecedented access to the markets of the world, to say nothing of preventing famine as far as man's work can do it.

In one place *P.* remarks that though waterways will do something they cannot carry at 30 or 40 miles an hour. First, with respect to this excessive rate of speed, we have observed a wonderful change of opinion of late of the importance of it in a poor country like India, and that too even among the Railway men themselves. Even now that the cost of high speed Railways has been incurred, the question is not of speed but of cheapness. The late Consulting Engineer of the Madras Railway in a letter to Government so long ago as September 1857, says, "Our policy here is *to carry everybody and everything as cheap as possible; our speed should be reduced therefore,* because in reducing that, we reduce our expenditure in every department, and among the rest in the quantity of materials put into our carriages." There can be no doubt that the Engineer is perfectly correct in this view of the case. What a pity it seems that this principle, the very fundamental one in the theory of transit, was not discovered before so many millions had been expended, and it had thus been rendered next to impossible to have cheap transit on the lines on which Railways have been constructed, excepting where they run parallel to lines of natural water carriage.

But secondly, are there not some things which waterways can do, and that Railways cannot; for instance irrigate the country and change a desert into a garden, famine into plenty, reduce the cost of production to one half or one third. Which is of most importance, this, or to carry at 30 or 40 miles an hour? Which would be the most gratifying sight, a train passing through a famine stricken country at 30 or 40 miles an hour, or a Steamboat at 10 or 20, passing through a tract teeming with population, and one sheet of rich crops of every kind of produce both for home and foreign markets?

We must leave to our readers to consider which is the substance and which is the shadow. If any have doubts let them make a tour among the Ryots and merchants of North Arcot and of Rajahmundry, and ascertain what the people say as to the comparative benefit of a single line of Railway through a district, costing $\frac{1}{2}$ a million, and that of two thousand miles of Navigable Canal and a million acres of irrigation, which have together cost the same money. Or let them ask the financiers what they think of an increase of Revenue in the latter district of 60 per cent. now, with a certain profit of more than double that when the works are completed, as compared with no increase in North Arcot.

There is a 4th letter from *P.*, which we think it is not necessary to go through as we have already gone over the same ground. We will content ourselves with one or two remarks. The expenses on English and American Railways which we have quoted and to which *P.* refers, are taken from a most complete report by a deputation appointed in America to compare the cost of working the Railways in the two countries, and it certainly seems to us that no better data than those furnished by them are procurable.

P. quotes a less sum than we have given, as the cost of "operating" the American Railways. His mistake is in supposing that "operating" in American Railway language includes all the items of the cost of carriage; but the word excludes maintenance of way, and repairs and replacement of rolling stock.

We thus conclude our remarks on *P.'s* communications, so far as already received. If we have made any that were calculated to give pain, we beg to apologize for them.

We have endeavoured to do no more than give our views of this case, so important to India. We yet hope to add something further on the points not noticed by *P.*, but which appear to us to require some further examination.

(4th Letter signed P. in Madras Times, March 12.*)*

SIR—I have made it a rule for many years, to ascertain as clearly as possible, before entering into a discussion, written or verbal, exactly what I was going to write or talk about. I find the strict observance of such a rule not only very convenient, but very necessary.

It was in accordance with this rule that I began my remarks on what you yourself call a "Railway investigation," by distinctly stating (see in your paper of the 11th Feby.) what I conceived to be the nature of your argument and what was to be mine. We were to discuss the Bengal Railway in particular and Indian Railways in general; their cost and their prospects.

The value of water under any circumstances, whether as found flowing down the Hudson River or irrigating the land in Rajamundry, has nothing whatever to do with the question; and your rather lengthy reference to these only serves to distract your reader's attention, and to give me a good deal of trouble in fishing for some fact or argument bearing upon our Railway investigation.

Let us therefore stick to our subject till we have done with it (and I think I shall dispose of it in a few paras) and let me only add here that having entered upon the Railway inquiry, I must entirely decline being dragged into an attitude of hostility to water communications. I think I know how to value them as well as you do; but they are beside our present purpose. I may have a few words to say about them in my next.

In my last letter, I showed that there was every reasonable probability of all three conditions (the first had not caught my eye and is not of much consequence) which you declared to be essential to the *paying* of the Railway being fulfilled. The last of these three (or four as I now find) was that it should realize (speaking of the Bengal line) a profit of 3 pies per ton mile, on 320,000 tons of annual traffic. I have now to consider your opinion that to do this they must charge 14 pies per ton mile; and I shall be able I hope to show distinctly the error which lies at the bottom of all your arguments and calculations.

I shall lay down the following axioms:—

1. That the Railways have shown everywhere, and therefore

will show here, a tendency to create and augment their own traffic (ax. 1.).

2. That as the amount of traffic increases the cost of performing each unit, i. e. the carriage of a ton or a passenger necessarily decreases (ax. 2.).

With regard to the first, any established line of communication in any country not declining in wealth and population will have, year by year, an increasing traffic; and common sense suggests that where a new line is established, superior to anything that preceded it, this augmentation will, for a certain time be exhibited in a very marked manner; while experience has shown universally that, as usual, common sense is right. With regard to the circumstance of which you make so much that there is still traffic on the western high road, I believe that no man ever expected it would be otherwise, until the rail extended further towards the source of traffic, viz., Coimbatoor and Bellary, &c., but it is a remarkable fact, that the aggregate traffic on road and rail has greatly increased since the rail opened.

Any one who knows the native character must be aware of the reluctance with which they yield themselves to new modes of life and action; but it may assist some of your readers to understand the difficulty in this case, if I remind you that a very great part of the traffic, coming towards Madras, consists of bandy loads of goods belonging, in the gross, to the driver who brings his load thus from Bellary, Cuddapah, Bangalore, Salem, or Coimbatoor, as the case may be: and I have known cotton purchased for export by one of the first English houses in Madras by a gentleman cheapening single bandy loads that he met on the Poonamallee road. These poor men could not possibly manage to trans-ship their loads at the western terminus (for the time being) on the Railway. I mention this as one only among a hundred difficulties in getting the distant traffic on to the Railway—others will readily suggest themselves to your readers.

In fact the Railways must and will revolutionize the whole system of traffic in this part of India. Bandies and bullocks must change hands. Agents (middlemen) must spring up as a distinct class. The man who following in the steps of his ancestors, now takes his own goods 3 or 400 miles to a port, must learn to trust his fellow man with them, or must find some capitalist near at hand to take his little produce off his hands.

On this side of India, we have very few capitalists who either by themselves or their agents collect goods—as cotton for example—in the interior for transmission to the coast for export. We must have patience therefore when such great social changes have to be made.

The Rail charges 8 pies a ton mile and carries goods safely at 15 miles an hour. The charge on the best road is stated by an experienced officer reporting lately on water projects at 2 annas a ton mile. On the western road I believe it has been less than this, but never down to the Railway charge or anything near it. On the less favorable roads it is more. Therefore the Railway *will* secure all the traffic, and like Railways all over the world will augment that traffic.

I shall not insult the understanding of your readers, by proving the second axiom, but content myself with illustrating it in a manner that will come home to yourself closely. Would each copy of your paper cost the same if you had a demand for 5,000, that it does with 1,500.

It would cost less.

Why? Because, of my expenses, a great portion may be called "general expenses" and are unchangeable, however much work I may have to do: while the "special expenses" belonging to each copy, are very small.

Of the former are my own labour, that of the compositors, the interest on capital, &c.; of the latter are, the paper, the share of ink to each copy, &c. Exactly, and so it is with a Railway.

And now "mark how plain a tale shall get you (and your 14 pies) down." You base this assertion on the fact that the carriage of goods on the Madras Railway had been (according to a late report) 9 pies per ton. Now at that time the goods carried were only 125 tons a day over every mile, and you assume that the cost will be the same or more when the amount of traffic should be 320,000 tons a year or about 900 tons a day.

Each unit will cost more in its carriage when there is seven times more work to be done which is absurd (ax. 2.) Now a few words and figures (don't object to a little theory, a little simple arithmetic) will complete this part of our subject.

The analysis of the traffic on the Madras Railway during a portion of last year gives the following facts regarding the cost of moving one ton a mile, given in maunds.

Cost of moving one maund one mile

Traffic Department.........	pies............	0·0524
Locomotive..................	„	0·0895
Carriage......................	„	0·0037
General Management......	„	0·0109
Permanent...................	„	0·1716
Telegraph....................	„	0·0010
	Total pies.........	0·33

or as near as possible 9 pies per ton.

Now the first thing that strikes one here is that the proportion attributed to permanent way must be, to apply a useful though cant word, abnormal; far more than usual. It was I suspect due to the extensive failure of wooden sleepers, an example of *general* expenses, and an unusually large one.

But to proceed. These expenses are divisible, into "general," and "special"—the former remaining the same in amount, to whatever extent the traffic may increase; the latter fixed, fastened upon each ton.

Belpaine who has given the best, of not the only analysis of any Railway operation, records as a fact, that the "special expenses" on the Belgium line due to moving a ton a mile were 7-100ths of a penny or about ⅓ a pie. But we won't run it so fine: we will allow double that, for the sake of liberal argument, and call them 1 pie.

Then 9—1=8 is the amount of "general expenses."

Now we had then 125 tons per diem. It is no great thing to assume (but you may make the calculation with any assumed amount) that it may, under a liberal tariff, rise to 500, i. e. be increased fourfold. What would be the cost of each ton then?

Special expenses................	1 pie.
General do..8-4................	2 „
Total...	3 pies.

Now the present charge is 8 pies. Consequently the profit on each ton mile would be 5 pies.

In a former letter I showed that, on the Madras line, we should require a profit of 14 Rupees a day per mile in the aggregate. Now such profit as I have shown above would give, from goods alone, per mile 500 + 5 = 2,500 pies = 13 Rs.

It is evident that if you lower your charges you increase your amount of work. As you increase your work you reduce the cost. The profit on each unit will be diminished while the number of those units will be augmented.

To find out at what charge the product of the amount of work done multiplied by the profit upon each unit of work, will be a maximum. This may be called the Railway Manager's problem, (and it is very often the newspaper proprietor's problem) and its solution requires a careful study of the commerce resources, condition present and prospective, of the country.

Let me at the risk of wearying your readers, work one question out.

If we had 500 tons of traffic at 8 pies charge per mile making 5 pies profit on each, what amount should we require to derive the same aggregate benefit on a profit of only 3 pies per ton.

$$\frac{500 + 5}{3} = 833 \text{ tons, } \frac{833}{125} = 6.5$$

What would be the cost of moving these ?

Special charges.........	1 pie.
General do. 8-6.5...	$1\frac{1}{4}$ „
	$2\frac{1}{4}$
Required profit.........	3
Total charge...	$5\frac{1}{4}$

Would a charge of 5¼ pies gives us 830 tons traffic or not? If it gave this exactly, we should gain nothing by the reduction and lose nothing. If it gave more, the aggregate profit would be increased.

I think I have said enough to show the unsoundness of your argument and calculations. You have continually argued in violation of the fundamental principles contained in my two axioms; which is the more provoking because if they are not admitted fully, there can be of course no argument. If the traffic is not to increase, the question is decided—your argument might then be put in the simplest possible form and your conclusion carried nem-con thus—

The Railway has not yet traffic enough to make it pay, therefore it never will.

Q. E. D.

But don't mistake me. You know and occasionally acknowledge that the traffic will increase; but you too often ignore it in your calculation.*

Let us look, for instance, at the two last paras. of your article of the 18th instant (after confounding in a wonderful manner the average amount of traffic with the average distance travelled) you give a conspicuous estimate in figures catching every reader's eye, and showing that the average number of passengers to Salem is to be 600, an estimate based on present traffic; and then you gravely add:—" This is nothing like what will be the consequence of extending the line, &c." Then why did you give it? And even if the line stopped short at Salem, do you not see what a change must take place in that town as a centre of traffic? that every man, woman and child from Coimbatore, Madura, Trichinopoly, wishing to make a journey to Madras, Bangalore, Cuddapah, Bellary, to any place in fact to the North and North West, would bend their steps to Salem.

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* This inveterate tendency on your part to taking present appearances for ultimate results is clearly shown in your objecting to my having recourse to *calculation*. See yours of the 21st February. How can one estimate future results otherwise than by calculation?

Before closing this letter, there is one very important point to which I desire to call the attention of your readers in connection with the Railway investigation.

We have a singular example of what are called vulgar errors in the argument against Railways in general based upon the non-payment of high interest on lines already existing in various countries.

You have with either singular boldness, or considering you are one of our public instructors, with singular short-sightedness, made prominent use of the argument.

Do you not know that in countries like England and America where competition is lively and free, capital has a constant tendency to a level? That comparatively high profits in one class of investments is a sure sign of there being relatively a small amount of capital engaged and vice versa; and that capital flows at once from business on which profits are low to that in which they are high? the tendency thus being towards a general equalization of profits on all investments.

A new investment such as the Railways were 20 years ago is like an open loan—all the old trades long depressed and closed—and capital flows to it till profits find the general average level.

Have you never heard men with a few odd thousands in hand complain of the difficulty of turning their cash to profitable account, of getting more than 4 or 5 per cent. without increasing risk?

Is there any reason why Railways should be, is it possible they should be, exempt from the operation of this natural law?

If a man lays a ship or a coach on a new line and clears 10 per cent. on his capital, does he not soon see another ship or another coach alongside of him, reducing his profits of necessity?

When, soon after the introduction of Railways (which by the way there were not wanting members of both Houses to pronounce "a complete mistake") when the few first lines of Railway were constructed, they soon paid high dividends 10 per cent. or more, of course the consequence was a rush into so profitable an investment, and the natural results (further promoted by the eager gambling in shares) was an overtrading in the particular branch of business. The supply as occurs in some one department of commerce almost every year, exceeded the demand. There was a glut of Railway transport.

Now a peculiar feature in Railway, Canal, and similar investments, is that you can't withdraw them.

You can take a ship off one line and put it on another. If there are too many butchers in a town, one shuts up shop and sets up elsewhere. Your Railway can't do this. It must await the gradual and natural advance of business. Such has been lately the state of Railways in England, while profits have been low, business has steadily increased. There is a lull in the supply and an increasing demand, and Railways are working up to a level with a normal rate of interest, and mark, they can't do more. The moment they exceed that, we shall have more Railways.

Look at the means of transport, and the work done in England, and in the United States 30 years ago, and look at them now. In the one 8 or 10 thousand miles of Railways (I speak from memory;) on the other 35,000 miles added to the means existing then. You will see how the above argument applies. There must be at the present time something between 25 and 30 millions sterling paid annually for transport of goods and passengers on the Railways in England alone.

Was there ever any thing like this, or would there ever have been anything like this, with the Canals alone?

There is not a trade or calling in England from the barrister to the village barber, from the Mancester manufacturer to dealer in rags, in which you will not find the majority asserting that the profession is all going to the dogs; they can hardly live by it. I never spoke to a tenant farmer but I was told he could barely live by his calling, and are we therefore to have no lawyers, (no such luck)—no barbers, no farmers? What does house property in England yield? 3 or 4 per cent., are we then to have no houses?

Where competition is perfectly free, investment comes every where to the same average result. It is only where competition is excluded by natural or artificial means, that men succeed in getting and maintaining interest on their investments beyond the ordinary rate prevailing throughout the country.

Individual members of any department of commerce, like individual Railways, may and do, from superior management, better luck or more favorable circumstances, beat their competitors; but I allude to this or that particular branch of business considered as a whole.

I have been rather lengthy on this subject because it is very important, and I trust that in your columns and among your readers I have effectually prevented the further use of this singularly unsound and inconclusive mode of reasoning.

I shall in my next, which I hope will be my last, offer some remarks on the American Railways and Canals.

P.

March 2nd.

(5th Letter signed P. in Madras Times, March 21.)

Sir—It will be some comfort to your readers to know that this letter will be, if I can possibly make it so, my last. I propose commenting upon the informations you have given us respecting water carriage in general, and American water carriage in particular. I shall notice.

1st. Some mistakes you seem to have made.

2ndly. A few facts, and

3rdly. I shall make some general observations.

Before, however, mentioning your mistakes, I will correct one of my own. In a former letter I stated that in the Report of the Canal Surveyor of New York 6 millions per ton mile was given as the cost of "operating" a line of railway; and I took this to mean "working expenses." I was wrong. It means only some portion of them—taken to compare with the working expenses on the Canals in which (being State property) certain expenses are not included which are commonly found in the "working expenses" of a Railway.

I now find from a table (D) in the Report for 1852, that the average working expenses, on 30 different Railways, amounted to 125 millions per ton mile, or according to the ordinary rate of exchange 5 pies per ton mile. According to the relative value of money as estimated by you, this would be equivalent to a cost of $\frac{5}{8}$ths of a pie per ton mile in India.

And now permit me to point out a few mistakes in some of your late articles, premising that the Reports to which I refer are those of the *Canal* Surveyors of the State of New York.

1*st*. "The traffic supposed by "*P.*" viz. 400,000 tons a year which he allows on the Calcutta line."—*Daily Times, February* 11*th*.

P. said 320,000.

2*ndly*. "Now that the Erie Canal is enlarged for boats of larger size, and worked by steam, there can be no doubt it will be worked at a much lower rate."—*Daily Times, February* 11*th*.

Remains to be seen. Is it worked by steam? In 1854 the Canal Surveyor speaking in sanguine terms of the enlargement did not contemplate this; and the same practical plain speaking personage wrote of "the Mississipi and its larger branches" that among their *disadvantages* was "*the necessity of employing steam vessels exclusively*."—*Report for* 1854, *page* 20.

On the Erie Canal there are 84 locks, and they talk of getting 7 millions of tons of goods traffic. A steamer attempting to go any pace would have a nice time of it. In fact it is a dream, at present, this economical application of steam power on Canals whether for slow traffic or quick. (For remarks on this subject, see Mechanic's Magazine, November 4th, 1859, page 300.)

3. From the example of the Hudson, you conclude that if we had either "improved rivers" or capacious Canals, we could carry both goods and passengers for from $\frac{1}{2}$ to 1 pie a mile (what

goods correspond to one passenger ?) and run at any speed.—*Daily Times, February* 11*th*.

Any speed ? a somewhat extravagant non sequitur.

" *The Hudson affords an example of the best description of river navigation, in consequence of the uniformity of the flow and the smoothness of its water allowing the use of either sail or steam vessels.—Report for* 1852, *page* 20.

The Hudson cost nothing to make or to maintain, has no locks, a wide expanse, and great depth of smooth water.

The Erie Canal was estimated (see Report for 1854, page 27) to cost 98,000 dollars a mile, has 84 locks, 70 feet surface width and 7 feet depth of water. They had not used steam on the latter, nor talked of using it in 1854 ; and we have yet to learn that they have done so with advantage.

4. You allude to my statement of the superior power of the Railway and its effects on the people as " vague declamation" and say these speeds are not wanted.—*Times, February* 13*th*.

This is what we call a conservative argument; one you perhaps heard in England in 1830, and one you will hear again at each progressive moment. Let me however remind you that if we *could* not accomplish 40 miles an hour on our Railways, we could not make sure of clearing 20, at all times.

5. " Did *P.* ever try the effects of a steam-boat Canal on a Railway* running parallel to it" ?—*Times, February* 13*th*.

No—and " *P.*" fears he never will. Canal proprietors know better than that. If he sees it at all, it will be in Rajamundry where irrigation is doing so much for the people that we shall have cry for Railways ere long. There is however hardly a River in Europe or America (and they cost nothing in construction) which has not a Railway full of work alongside of it.

6. " Had they (the Canals in England) been enlarged and strengthened and adapted for rapid transit like the Erie Canal, they would not have cost one-third of that of the Railways."—*Times, February* 13*th*.

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* It should have been on a *Horse* Railway running parallel with it.—Ed. *Madras Times.*

Where is the Canal "adapted to rapid transit"? The Erie Canal, (enlarged) was estimated to cost 98,000 dollars the mile; and we hear of no rapid transit on it.

In this "rapid transit" how does the steamer manage the locks, of which you could have one at least, per mile of direct distance, on some of the main lines of communication in India, and the passage through each of which occupies at least 10 minutes?

7. You quote and seem to adopt a statement that a Railway could not carry limestone.—*Times, February* 8*th.*

Why not? English Railways carry coal, slate, lime, sand. Why not here?

8. "In England a few years ago, the average distance travelled by passengers was 13 miles."—*Times, February* 18*th.*

A mistake I think. This is only for the 3rd class. But I have no means of reference.

9. And now lastly, you have given us some account of the success of the "London and Oxford" Canal; and I cannot but think it a "mistake," on your part, not to give us the present state of the traffic on that line, and also the past history of some other, say the "London and Portsmouth" Canal.

And now a few facts for your readers.

The following table is from the Canal Surveyor's report for 1854, page 23 (the charge by the Erie Canal [enlarged] being *estimated.*)

TABLE OF THE COST OF TRANSPORT PER TON PER MILE.

Ocean long voyage...	1	Mill.
,, short ,, ...	2 to 4	,,
Lakes long voyage...	2	,,
,, short ,, ...	3 to 4	,,
River, Hudson and of similar character ...	2.5	,,
,, St. Lawrence and Mississipi ...	3	,,
,, Tributaries of Mississipi	5 to 10	,,
Canals, Erie enlargements	4	,,
,, other large but shorter	5 to 6	,,
,, ordinary size...	5	,,
,, ,, with great lockage	6 to 8	,,
Railroads transporting Coal	6 to 10	,,
,, not for Coal, favorable lines and grades	12.5	,,
,, ,, steep grades, &c.	15 to 25	,,

A mill, may be taken (at the rate ordinary of exchange) to be worth 1-20th part of a penny or about 2-5ths of a pie.

The above table gives a fair account of the actual *cost*, not charge, of slow (goods) traffic. There is no reference to any quick traffic.

On this latter the Canal Surveyor makes the following remarks :—

" The superiority of Railroads for the rapid conveyance of passengers, and those descriptions of freight too perishable or too valuable to be forwarded by the slower but cheaper movements of water lines, soon led to their establishment over every section of the State, and to the paralleling of almost every water line."—*Report for* 1854, *page* 51.

There are in the State of New York alone 997 miles of canal, and 3591 miles of Railway, inclusive of 1,000 reported " in progress." Of these 997 miles of canal, only 120 were constructed by private enterprise; the rest are State works; whereas the whole of the Railways were undertaken by our " intelligent cousins," as private speculations.

The Canals of New York, and especially the Erie, are so singularly and favourably circumstanced, that they cannot be taken as a standard whereby to measure the value of Canals generally, and in other localities, for these reasons. They form but subordinate links in one of the grandest systems of natural inland navigation to be found in the world.

The value of a Canal or Railroad is to be measured by the work it can do and the work it can create, and especially by the latter; because the more work it creates the more it benefits the country, and *the cheaper it can perform it.*

The traffic on the New York Canals is due not to their own influence solely, or mainly; but to that of the noble rivers and lakes with which they are connected: and the Erie Canal may be looked upon as the honored instrument for conveying the enormous traffic created by the Hudson, the Mississipi, and its tributaries, and the lake.

The first water route given in one of these reports, viz. that from New York to Cairo, shows 1560 miles of natural water communication, lakes and rivers, to 463 of artificial canals. Hence the obvious applicability of canals to that part of the world.

The position of the Erie Canal among other similar works is such as that of a Railway from Madras to Bangalore would be among Railways, if, at the latter place it met a natural system of Railroads ready made (involving no cost for interest or maintenance) extending to Bombay, Central India, and Calcutta: and observe that it is of such a work as this, fed with immense traffic, that calculations are made by the Surveyors themselves which result in an estimated profit of about 8 per cent. on the capital.

In his report for 1851, the Surveyor writes thus:—"It is estimated that a reduction of the average cost of transport to 7 mills per ton per mile, would increase the tonnage of the canal to the enormous amount of 1,000,000,000 tons one mile, by the year 1855, when the whole earnings of the canal would, at the estimated prices, be $7,000,000, of which the State would receive $3,000,000, or more than ten per cent. on the cost of the canal."—*Report, page* 15.

This capital cost was estimated in 1852 at 80,376 dollars a mile, but in the report for 1854 (page 27) we find it raised to 98,000 dollars, 35,700,000 dollars the whole. Deducting 700 dollars* a mile from the "toll for maintenance," we have the very sober estimate of 7·7 per cent. interest on capital.

In spending this large amount of capital, work was commenced in 1836, and it was not completed in 1854. Not having accommodation for the increased amount of thorough traffic, we may presume it did not pay very liberally during those years. I see however no mention of the loss of interest being thrown upon the estimated capital cost.

I must add here that in 1854 the Surveyor estimated the profits higher, but solely on the assumption that, while the tonnage would be greatly increased, the old rates of charge would obtain—which is unreasonable, and was clearly never contemplated.

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* See Report 1852, p. 59.

It will be observed in the above table that water carriage is classified according to its nature and circumstances.

It is not jumbled up into one class as if anything we choose to call a canal, were of similar capacity and value with Lake Erie or the Hudson.

They note four different kinds of canal, not knowing perhaps anything of a fifth—a tidal ditch in which when not sticking in the mud you are punted along with a pole at the rate of two or 2½ miles the hour.

We see then that a Railway and a Canal are two different descriptions of instrument, each adapted to its own proper place and work.

Consider it as you will, the Railway is the most valuable and efficient instrument of the two, and it almost necessarily follows, the most expensive. But this too depends upon circumstances. No Railways in America have cost so much as the Erie Canal—they cannot compare with it in capacity for one description of work, but they retain their characteristic superiority in other respects.

I will conclude this too long letter with a few general observations; and, first, you would greatly err if you supposed that I or any other man advocating Railways in India was ignorant of the value of water communication, or of its superiority in some respects and under some circumstances to that by Railways.

No! Let us have water by all means, or rather let us turn to the utmost possible account the water which God has given us in abundance. The sight of a Canal in this country will ever afford me quite as much gratification as the sight of a Railway, provided always it is not placed where a Railway should have been.

The New York Canal Surveyors says (Report for 1852, page 65.)

"Railroads and Canals have each their appropriate functions to perform, and they each add to the business of the other."

He speaks of a country where both exist, and the same may be said whenever local circumstances favor the introduction of both. Canals are acknowledged everywhere (except where they have been extinguished by Railways) to be highly useful works; but Railways are felt by every civilized people in these days to be essential to the rapid development of a nation's wealth and strength.

As to the probable effect of competition between the two, that must entirely depend upon local circumstances.

Like all competition, it might and probably would do some good: but it would be far more to the interest of the country if they could be made to work together in harmony and on liberal principles, each working in its proper sphere for the common weal.

That Railways do press hard on Canals in competition is well known; and speaking of the probable effects of the enlargement of the Erie Canal, the Surveyor notices the advantages it may then be expected to have over the Railway, and adds* "it is as evident that the Canal at its present capacity can be affected by Railway competition and that it would be." This in goods, mind. Of the other traffic they have no doubt.

In "its present capacity" it was no despicable work, 40 feet water surface, 4 feet depth; locks 90 by 15.

To discuss the question of Canals versus Railroads, in the abstract, would, under present circumstances, be sheer waste of time. The question of the one description of work against the other may, and occasionally will, arise in one of two different ways.

1st. As on the present occasion (though rather late in the day) whether a system of Canals is better than one of Railways for such a country as this, on its main lines of communication.

2ndly. Whether in this or that particular locality we should lay down the one or the other.

The latter is always a fair matter of discussion. The former has been decided already in favor of Railways, and in my opinion rightly; for our rulers see in common with all the world that we want—I know you will call it vague declamation,—the impulse to moral, social, commercial and political progress that Canals never gave, but which Railways by the promotion of a free and vigorous circulation, have given, are giving, and will continue to give.

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* Report for 1851, p. 24.

It has always appeared to me that a Canal would in many cases be a very important and appropriate adjunct to a Railway; and I have wondered that such Companies as the "London and North Western" and the "Great Northern," did not, instead of adding a third line to carry their coal, rather look out for or construct a Canal to do this and other slow work for them. There must be some good reasons why they have not done so.

As to your Canal to Goriattum, the carriage of firewood, if at that distance it would compete with the East Coast Canal, would doubtless be very appropriate employment; but if it could not get on from thence to Bangalore and Bellary, and the Railway did, it would have a poor chance of any other employment.

One more point I must just touch upon, and that is, the real importance of this question of *paying*. I have shown that there is every probability of these lines paying when they shall have become sufficiently extended, and shall have had time to take over all present traffic and create more work; both of which processes are now going on together.

It is however a remarkable fact that while the opinion is every day gaining ground that the high roads should be thrown open to the public without toll, i. e. without the traveller or carrier being charged for payment of interest on the cost of the road and for its maintenance: on the more modern and perfect instrument, the Railroad, this toll forms part of the regular charge, and a man would be astonished if it were proposed that interest on first cost and maintenance of way should be provided from the public funds, the traffic being only charged for locomotives and traffic expenses. Your objections to Railways have, I must say, this merit, that they are much in accordance with those put forth in a pamphlet a few years ago by an experienced officer of this Presidency, but they differ in at least one important particular. You attach the greatest importance to these works *paying* by direct returns from traffic; whereas that distinguished officer not only deprecates the introduction of tolls (for this purpose) on Government Canals, but in the pamphlet to which I allude wrote much of the indirect Returns in the shape of taxes, &c., and observed in one place (page 81) that the Engineers, and others concerned in projecting the great Railways, had views naturally contracted to this comparatively insignificant part of the subject, viz., will such a Railway pay to the shareholders?

I doubt not the indirect returns from these works have been great already, and will be much greater; and while this is, so there can be no doubt of their capability of paying, and if they belonged to Government, I should say that, so long as they did the work of the country cheaply, and stimulated progress moral and material, it mattered not whether they did or did not pay directly more than their working expenses. Whether they belong to Government or to private companies, the great fundamental principle here affirmed, remains the same, viz. that their indirect effects are of far greater important than the direct returns; and that as these are greatly increased and extended by any reduction in the charge for transport, it is better to exclude from that charge all tolls being a charge for maintenance and interest, and meet those expenses out of the national exchequer into which so much benefit flows indirectly from the operation of these works.

Now no one can believe that these great indirect benefits can be measured in a few months, or accurately measured at all. We have seen in European countries—and we unhesitatingly trace much to the Railways—vast strides, within these last few years, in social and commercial activity, in a general and more rapid diffusion of knowledge, and in a universal and palpable improvement in the condition and habits of the people.

I cannot better conclude this letter than by referring you to an interesting passage in which may have escaped your notice in Mr. Wilson's late speech on the prospects of the country. He says in allusion to the Bengal Railways:—

"What is required is the completion of these lines at any cost but quickly; and we shall see a result for which the most sanguine is not prepared."

The Right Honorable Gentleman then does not consider our Indian Railways " a complete mistake." That is quite clear.

My opinions as to the prospects of Indian Railways generally may be summed up thus :—

I think our Railways will in their indirect results very soon prove amply remunerative to Government and the country; but they must do their work before they will *pay* in the ordinary acceptation of the term, i. e., they must to a certain extent stimulate the resources of the country, moral and physical, before they can create that traffic to which they look for direct remuneration. They must lay in their farming stock, plough and sow, before they can expect to reap. They have not here, as they had in England, a harvest ripe to their hands.

It appears to me monstrous to look for anything else here, except in a few special cases; to expect that the Railway companies should find ready made that very condition of things, the active circulation of men and goods among wealthy, enterprizing and intelligent population, which it is their special calling to promote, and in great measure to create.

The best evidence of the success of the Railways will be found in a marked and steady increase in the traffic.

I have spoken of the stimulus given to every class of the community, and every department of commerce, by the introduction of the new and highly efficient mode of transport.

Let us remember however, that here, we are, mainly, an agricultural people, that here as in other agricultural countries, the cheap punctual carriage of goods, the great facilities given to personal intercourse, the general and rapid diffusion of knowledge, surely tend to the promotion of enterprize and intelligence among the owners and cultivators of the soil, to an improvement both in the quality and the amount of its produce-

In this part of India the Government is one great Land. lord; and unless the Government yields as any individual proprietor would yield, to the influence of this stimulus, and acknowledges its own obligations by a constant care and extension of the means of irrigation, by the construction of branch and feeding roads, and by all such measures as shall quicken the industry and promote the well being of their tenants; the object and tendency of the Railways will be in a great measure defeated. In speaking of irrigation I allude of course chiefly to the Ryotwar districts, and to that large body of cultivators, which to whatever extent the value of its land may be enhanced by the proximity of the Railway, will look, as heretofore, to the Government, for the means of increasing the amount, and improving the quality of its produce, by a continued attention to, and a liberal outlay upon these subsidiary public works.

P.

March 10*th.*

(*Article from Madras Times, March 24.*)

We must now make some remarks on *P.'s* letter on Railways in our issue of the 12th instant. It is quite unnecessary for us to continue to answer *P.* paragraph by paragraph, as there would be no end to the controversy if we did, and we have now gone so nearly over the whole of the ground, that almost everything that *P.* now says has already had our reply in some of our former papers. We propose therefore now only to remark on a few points in the present letter.

P. begins by saying that the value of water has nothing whatever to do with the question. But this is the very point on which we are directly at issue with him. We urge that having such an agent as water, which will really and perfectly answer all our purposes including transit, we are not under the terrible necessity of constructing Railways. *P.* is certainly quite right to insist upon water being excluded from the discussion. As long as he can keep people amused with such questions as whether Railways will carry at 6 P. or 10 P. per ton, or return 2 or 4 per cent. interest, whether he has the advantage in the argument or not, he equally gains his point. When people are drowning they will catch at a straw, and if only they can be deluded by something that cannot keep them afloat, they will not look about them, but if once their attention is drawn to an approaching boat, they will of course leave the thing which before they were grasping at, and make determined efforts to reach that which *can* rescue them. This is the state of the case with by far the greater part of those who are interested in India. They begin to see plainly enough that so far from relieving India, the Railways will, if carried out to the extent proposed, load India with a terrible additional debt, [while at the same time, they cannot meet the demands of trade, either in respect of cost of transit or quantity. But they are clinging to them in mere desperation, because they are not really aware that there is a means within reach which] will perfectly answer all our purposes, viz.;

1st. Carry so cheap as almost to annihilate the cost of transit.
2nd. Move both passengers and goods at ample speeds.
3rd. Convey the enormous quantities required to be moved.
4th. Cost so little as to allow of ample dividends, and
5th. In addition to all this, by irrigating the land, provide cheap produce, as well as cheap transit.

Out of all this the only one thing that Railways can do is to carry at good speeds. Now if people's attention could only be drawn from works which entirely fail in the four essential points and only answer in the one non-essential, to those which perfectly answer in all five, the controversy will soon be at an end. The real question lies in a nutshell, but if *P.* can succeed in keeping that out of view, and occupying the public in discussing the details of the Railways, no doubt he will gain his point.

We need not go again over the question which *P.* now discusses, the actual cost of carriage by rail. We have already stated the cost in England and America, where the Railways have been long enough in operation, for the expenses to have come perhaps to a normal state. *P.* is certainly wrong in supposing that goods can be carried at 3 P. for if the coals were carried at that rate on the Calcutta Railways, the charge being 8 P. the nominal profits on that line would be far higher than they are, while no allowance is made for depreciation. And of course coal traffic is the cheapest of all, far cheaper than the general goods traffic, because every train is full, and the amount of traffic is equalized.

We must free ourselves from one of *P.'s* charges at the expense of our reputation for legible writing. He quotes us as saying, "This is nothing like the effect of extending the line" (in the passenger traffic), and adds, "Then why did you give it." It should have been "something," not "nothing."

With respect to the returns from Railways, we have only to say, that it is notorious that the Railways in England on the whole paying only 4 per cent., yield a less return than probably any other mode of speculating; and if this is the case in so wealthy, active, and populous a country as England, how can we expect them to pay in a country so greatly behind England as this is, where Railways will traverse several hundred miles without touching one wealthy town. This is surely a sound argument. Take for instance the line from Sholapoor to Madras, 6 or 700 miles. Compare such a line with the most unproductive line in England.

Further on *P.* says, "Would there have been anything like the present traffic in England, with the Canals alone?" The fallacy here lies in the words "*the Canals.*" When he speaks of Canals he evidently means the present insignificant, winding Canals, unfit for steam, and with locks that require a quarter of an hour or more to pass them. We are not talking about such Canals as these. What would be the consequence of a contrast between one of the old horse Railways and a Steam-boat Canal? Knowing the enormous power of steam, we speak of Canals or Rivers capable of being worked by that power.

Having thus shortly remarked on the letter in our issue of the 12th, we must make a few remarks on that in the issue of the 21st.

P. is certainly wrong in supposing that the cost of working Railways in India, would in comparsion of that of working them in America, be in proportion to the difference in the value of money. The apparatus will most of it be more expensive than in America, and all the European Agency will be so too. There are already ample data from the working of the Railways in India, to show that there is little probability of the cost here being less than in America.

There is no doubt a disadvantage in river navigation, in the necessity for its being worked by steam *exclusively*. One of the great advantages of Canals, especially in this country, is that they can be worked by any means and at any speed that may be most suitable to each particular traffic. The want of this is one of the grand objections to Railways. In England you see a luggage train drawn along often at 30 or 40 miles an hour at a cost perhaps double what it need be if only the following passenger trains would allow of its travelling at the most suitable speed.

P. speaks of locks requiring ten minutes to pass a boat through them. But we do not speak of such locks. A lock can be made so as to be filled in a minute, and if high speed is a great object, the detention by them will be very small.

P. asks, why not? why should not the Bengal Railway carry the limestone from a certain gentleman's quarries. We merely stated a fact that the proprietor said it would not. The reason is obvious; the Railway carries coal at 8 P. a ton, while by the present river navigation unimproved as it is, it can be carried by the Natives in their very ill suited boats at about 3 P.,—and were the projected Rajmahal Canal constructed it could certainly be carried at 1 P.

We cannot follow *P.* through this letter. His table of cost of transit is alone quite sufficient. He gives that on the Erie Canal at 4 millions, or 1-5th of a penny, or about 1½ P. a ton.* Now it is certain that if goods are carried there by animal power, at that price, they can be carried at much less here, where the hire of both men and animals is so greatly less. P. says he does not hear of steam being used in the Erie Canal now that it is enlarged. Neither have we actually heard it, but we know it was intended to use it on the enlarged Canal, and we have no doubt it is. There can be nothing to prevent it. Steam is used on the Rajahmundry Canals, though as yet certainly high speed has not been used; but this was only owing to the defects of the boats.

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* And this was before the Canal was enlarged.

P. also touches upon the question of tolls on Railways, &c. and speaks of its being a question whether it is advisable that tolls should be levied. This is quite another matter. The point is this that a communication *ought to be able* to pay tolls sufficient to cover interest. If it cannot, it certainly is a mistake. A work that will not pay interest is not suited to the country. This is the true test of a work of material improvement. Of course there can be no excuse for levying tolls on Canals that already pay very high interest by Irrigation.

We quite agree that indirect returns from such works are not to be considered of no value, but we hold that the best means of judging of the indirect returns of most Public Works, is the amount of direct returns that they are capable of yielding. If there is a very large total benefit yielded by them, it is certain that such a portion of that may be taken as tolls, as will afford ample direct returns.

If for instance land can be watered at a cost in capital of from 5 to 10 Rupees an acre per annum, and the produce is increased by water to the value of 20 or 30 Rupees a year which is about the state of the case in this Presidency, it is quite evident that out of this enormous result, direct returns may be realized, and yet leave the transit toll—free.

P. says, Railways in this country must do their work before they will pay; they must lay in their farming stock, plough and sow, before they can expect to reap. If a man goes into his field in the spring with his sickle he makes a great mistake. What *P.* says is the strongest possible condemnation of Railways.

If matters were exactly the opposite of what they are, if India were full of wealth and activity, Railways would have been suitable. This is the amount of his argument.

The question of course is, Circumstanced as we are, which is most suitable, a work which will water the land, carry at 1 or 2 P. a ton, cost 10,000 or 20,000 Rs. a mile, and convey any amount of Goods and Passengers at (if you please) not exceeding 12 miles an hour, and yield directly 15 or 20 per cent., and indirectly 100 or 200 per cent., or one that will barely pay interest, (probably not nearly so much,) which will not carry at less than 6 or 8 P., will not water the country, cannot convey a fifth part of the quantity that should be moved on the great lines, but will carry Passengers at 20 miles an hour? Whether many years hence, when the country may have become wealthy, it would be worth while to lay Railways is quite another question, which we need not trouble ourselves about now.

P. in extolling Railways on account of their promoting intercourse, &c., writes exactly as if Canals would not do this. All that he says Railways will do, Canals will do ten times more effectually except perhaps carry at 30 or 40 miles an hour. But this the Railway men themselves consider of so little importance that when they have incurred the expense of making the Railways, they work them at from 12 to 20.

Had the Government sent a circular to the Collectors and District Engineers, directing them to sketch out a system of works for each district to cost 40 lakhs, such as they judged would most benefit it, we doubt whether a single Revenue officer or Engineer (*P.* included if he had held either situation) would have recommended 40 or 50 miles of Railway in preference to suppose 400,000 acres of Irrigation, including in it 500 miles of Navigable Canal giving access to every village within a few miles. If each District were thus treated, the whole country would be laid open effectually, there would be direct communication from the Presidency and the great internal markets to every village, and the effect of it upon the country, in every respect, even Police, Superintendence, &c. would be immeasurably greater than that of a bare single line of 50 miles of Railway in each district.

The Railways now in progress in this Presidency will probably cost not much less than 8 millions, or 40 lacs per district; can there be a question but that their effect upon the country will be utterly insignificant in comparison of what might have been done by means of Waterways?

Volumes may be written on the details of Railways, but they will not in the smallest degree affect this short argument.

(*Article from the Madras Times, March 28.*)

We have written so much lately against Railways *in general* in India, that we hope we may be allowed for a change to offer something in favour of a Railway *in particular* in this country. We cannot see the use of trying to persuade ourselves that a thing is what we know it is not. How much better to open our eyes to the actual and palpable state of the case, and then consider what under these circumstances, we had better do.

The present gross receipts of the first 120 miles of the Madras Railway, and excluding Railway materials, are under 100 Rs. a week per mile, or 5,000 Rs. a year, and if we take 40 per cent. of this for the present excess of receipts over disbursements and 80,000 Rs. a mile as the Capital, the nominal profits are 2½ per cent., without any allowance for heavy repairs or depreciation. At Vellore the Railway loses all the North West traffic, and at Vaniembaddy all the Western traffic. It is quite certain that the South West traffic, which is all that will pass along the Railway beyond Vaniembaddy, will not exceed 1-5th of the whole, so that for the next 200 miles, the traffic will be quite insignificant. And even in the last 100 miles, adjoining the Western Coast, it is quite certain that the traffic cannot be a quarter of what it is at this end, on the part entering the Capital. Probably Beypoor and Calicut don't contain more than one-twentieth part of the population of Madras, and not one-hundredth part of its wealth. Nothing therefore but the most wilful shutting of our eyes to plain facts can hinder us from seeing that the Railway cannot pay its Interest; nay much more; as the nominal profits in this productive part are only 2½ per cent. which is, so far as we have data is about the amount of depreciation, is seems certain that the whole line will not nearly pay its expenses, so that there seems *no ground at all for hope that if it remain in the hands of the Company, the Shareholders will receive their* 5 *per cent.* for the terms of the guarntee do not secure them in this, unless the Railway pays its expenses. It seems evident that the Directors and Shareholders have begun to consider this point, for at their last meeting the Chairman said that at the next they could insist upon the Government taking the concern off their hands. For their own sakes the sooner the Shareholders get this arrangement made, the better.

Thus much in respect of the speculation. Next, as respects another main object for which the Railway was intended, the carriage of goods. By the late returns the receipts per week for *merchandize*, (exclusive of Railway material,) have been 4,000 Rupees, which at 9 P. a ton a mile, gives an average traffic on the whole line of 123 miles, of 36,000 tons a year, a quantity ludicrously insignificant. It seems conclusively to show that in the whole 400 miles, the average for a long time to come will not exceed 20,000 or 25,000 tons a year. Probably on this, the main line entering Madras, the traffic ought, if the country were well opened and improved and the transit cheap, to be 500,000 tons a year. On the Rajahmundry canal it is about 5 times the present traffic on this Railway, though Coconada and Coringa have not 1-10th the population of Madras, and though the traffic from the distant interior there has hardly begun. Nothing can therefore be more obvious than that as respects the objects for which the Railway was intended, it has failed completely.

It only remains for us now to look this disappointment in the face like men, and consider what is best to be done under the circumstances. The money has been sunk, and the question now should be simply, how can we make the best of the case. Can we not get any return for our money; is there no use to which the Railway can be applied so as to save the country from a tremendous loss? Happily the moment we turn our eyes from a delusion to the realities of the case, the value of the work is as obvious as its failure in respect of the objects originally aimed at.

This line is the direct Highway from London to Madras and Calcutta, and if dealt with as an imperial work for expediting Mails, Treasure, and Passengers, it is a fair question whether even in the present state of the finances, it were not worth while to have expended this sum of 3 millions sterling upon it; even though a large portion of the interest had to be paid out of the treasury. The Weekly Mails and passengers would of course pay something considerable, and it seems certain that the communication with England must soon be more frequent. The total interest of the capital will be about £150,000 a year, and perhaps if it carries the mails, it will more than pay its expenses, in which case the cost of shortening the time between London and Madras and Calcutta, 3 days in the fine season, and 5 or 6 in the monsoon, would be perhaps £100,000 or £2,000 for each weekly mail, and £1000 for each when they run once a week each way. Supposing the cost of the Steamers to be £250 a day, 3 days would save £750 and 6 days £1,500 in the present Navigation. Mails and passengers would then arrive at Madras in 25 days, at most. And in the S. W. Monsoon, the advantage of starting from the W. Coast, instead of fighting a way through the monsoon round Ceylon, would be a very great convenience.

That this must be the course of the Passenger and Mail traffic, as soon as the line is opened to the W. Coast, seems certain, at least during 9 months of the year. Any Merchant or Company by putting on a Steamer from Suez to Beypoor will make Passengers independent of the P. and O. Company, as there is no monopoly on the other side of Egypt, and we suppose it will be impossible for the Government to resist the public pressure so as to keep the Mails going 3 or 6 days round, when there is the means of conveying them direct.

If the Railway Company keep the work in their own hands, they ought immediately to take this matter up. It is a vital point to them. The Scinde and the Calcutta Railway Companies are both constructing immense river flotillas, why should not this Company put on steamers from Suez to the west coast? If a steamer can run 30,000 miles a year, she would make about 5 trips each way, or 3 steamers would be sufficient to make monthly trips each way during the 9 fine months, for which an expenditure of £150,000 or £200,000 would be sufficient. It is quite certain that if this were done, every passenger from this Presidency would go by that route.

But when once this Railway is thus looked upon in its real importance, how obvious it is that arrangements should be made for perfecting the communication. What would be wanted for this is a break-water at Ponany, a work that could easily be constructed and would cost about £150,000. Among the strange mistakes that have been made about the Railway, (these are literally almost all the mistakes that could have been made,) one was the extension of it 20 miles up the Western Coast to Beypoor, because there was a sort of petty boat harbour there, utterly worthless as a termination to the Railway. Had the Railway been carried from Palghat to the nearest point of the Coast, Ponany, not only would it have saved 20 miles of land carriage for all goods and passengers, but a Capital of about £150,000, would have been saved also, quite sufficient to make a short breakwater, though perhaps long enough to shelter the very few vessels that would anchor there at one time, at least for some years to come, and it could be lengthened at any time. Indeed merely to shelter a steamer and one or two other vessels, probably a less sum would suffice.

It is now allowed that the improvement of the present port of Beypoor is out of the question, and orders have arrived from home forbidding the waste of money on it. The real fact is that there is but one way of making a Harbour on all that part of the Coast, as on this, viz., by a detached breakwater of stone parallel with the beach, and it is a matter of perfect indifference, where that is done, excepting that in some places the deep water is rather nearer the shore than in others, and Ponany has the advantage in this respect. Beypoor has no advantage whatever over any other point.

It would of course be of vast importance to have a breakwater at this end of the Railway also, and probably £250,000 would be sufficient to cover a very large amount of shipping here, and it could be lengthened as the trade required it. Thus an addition of half of a million to the Capital of 3 millions that will be expended on the Railway, would make this work, instead of a disgraceful failure, an imperial work of the first importance, materially shortening the time of communication between London and Madras and Bengal. There would also then be a great saving in the carriage of passengers and Mails to Calcutta, for the present Steamers running between Madras and Calcutta must be large enough to carry the passengers of both Presidencies, while they only carry those of one.

When once the Railway is opened to the Western Coast, probably no power in India or England will be able to prevent people taking advantage of so great a convenience, and it would be therefore much better at once to take up the subject and prepare for it.

Either the Railway Company might put on steamers themselves, or make arrangements with a separate Company to do so. Or the Government might arrange at once for the transfer, raise money for one or both breakwaters, and put the whole on a thoroughly good footing.

We would add that this is a matter that every European in India is personally interested in, for it would at once throw open the communication with England, and greatly reduce the cost as well as the time of transit.

It is a most remarkable, but a well known fact that about the latitude of Ponany in the midst of the Arabian sea there is a very extensive space of comparatively fine weather and smooth water even in the S. W. monsoon, in which the Steamers could run down their westing till within 2 or 3 days steaming of Aden, and Ponany is thus remarkably well situated to take advantage of this singular aid to overcoming the obstacle of the monsoon.

The Public of Madras are especially interested in this question, and we would urge it upon them, as one of very considerable importance. One expedient would be to form a Navigation Company here to provide steamers between the W. Coast and Suez, making arrangements with the Railway Company, if the Railway continues in their hands.

It may also be noticed that this use of the Railway would go far to cover the absurd mistakes that have been made in it. For instance as the main line to London, it would be of comparatively little consequence that it so scrupulously avoids all the towns and principal rural population on the line. And again, the position of the Terminus, so carefully placed out of the way as far as possible of almost every person having occasion to use it, would be of comparatively small importance, for one would not mind driving a few miles round in starting for England, and for Calcutta Passengers, the present terminus would be convenient. It would certainly be advisable to make a new branch to Ponany, for it would be intolerable carrying every thing 20 miles to Beypoor for nothing.

The Railway is now so far advanced that it is high time that this matter should immediately be seriously taken into consideration, and we think we cannot do better than draw attention to it.

Statement of y, from ten years before t

Years.	TOTAL REVENUE OF DISTRICT. Annual.	Averages.	trict.	IMPORTS BY SEA. Grain only.	Average.		
	1	2	8	9	10	1	
	£	£	£	£	£		
1836—7	216,000						
7—8	214,000						
A 8—9	173,000						
9—0	174,000						ge.
1840—1	174,000	196,0					
1—2	210,000						
2—3	196,000						
3—4	173,000				F		
4—5	233,000			19,000	22,000	2	
B 5—6	200,000			25,000		3	
6—7	242,000			19,000		4	
7—8	250,000	237,0		34,000	23,000	6	
8—9	233,000			23,000		4	
9—0	224,000			17,000		3	
1850—1	242,000			12,000		3	
1—2	245,000	245,0		9,000	7,000	3	
2—3	250,000			3,000		2	
3—4	244,000		,000	4,000		2	
4—5	251,000			8,300	E	4	
5—6	259,000			1,700	6,000	5	ry.
6—7	268,000			10,000		7	
7—8	275,000					5	
8—9	297,000					1,70	
9-60	320,000*	N					

* Estimated.

A. Some trifling repairs began this year.

B. The great works began this year.

C. These sums show the amount of bullion paid out of the Treasury within the district on account of 1st, Government establishments; 2nd, Public works; 3rd, Private Drafts granted for money paid into the Treasury at Madras.

D. The balance of bullion sent out of the district.

E. The import of food is now insignificant.

F. The imports, exclusive of grain, were about £10,000 a year, they are now about £70,000 showing that as the district has more to sell, it buys foreign articles more extensively.

H. The Cloth trade has declined through the competition of England, and is not much affected by the state of the district.

I. The exports excepting cloth are almost exclusively agricultural produce of the district; the increase was last year £357,000 above the former average of £36,000, or nearly tenfold. It is a bonâ fide increase of Income to that amount, and £210,000 more than the increase of Revenue paid to Government. This is beside Exports by Land.

K. The sums from this date are those expended on new works only; they amounted to £352,000, up to the end of 56-57, probably now £400,000 which includes all new works in the upper Talooks, as well as the Delta, and also in half of Masulipatam.

L. This is the number of boats. The average tonnage of the boats is probably more than doubled, and there were, besides, 2,230 rafts of timber and bamboos; estimated tons carried, 150,000 in 1856-7.

M. This Canal was closed for three months.

N. The increase of Revenue in Rajahmundry alone has been £124,000 and probably more than £20,000 in Masulipatam, about 64 per cent. upon the old Revenue, and 31 per cent. upon the outlay.* But by far the greater portion of the lands watered have yet paid no water rate, and only 2 Rupees an acre for one crop, where it is levied. At the same rate fully £100,000 more Revenue would be paid, if the rate was levied on all the lands. And the water carriage is all free, about 1000 miles of connected Canal and River.

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* Deducting 2 Lacs a year rom he gross increase for repairs, &c.

Comparison of the two Years 1845—6 *and* 1857—8.

Years.	Price of Rice per Ton.	Revenue.	Exports of Produce.	Collector's Remarks on the Seasons.
		£	£	
1845–6	£4—5*s*	200,000	77,000	Scanty rains.
1857–8	4—7	275,000	280,000	Do.
	Increase or per Cent.	75,000 27½	203,000 260	

That is in similar *unfavorable* seasons, before and after the Works, the Revenue now is 37½ per cent. higher, and the Exports 260 per cent. greater, than in the former period.

Comparison of the years 1841—2, *and* 1855—6.

Years.	Price of Rice Per Ton.	Revenue.	Exports of Produce.	Collector's Remarks on the Seasons.
		£	£	
1841–2	£3—3*s*.	210,000	29,000	Seasonable weather Abundant Crops, Rains moderate, singular failure of freshes in the Godavery.
1855–6	4—12	279,000	170,000	
	Increase or per Cent.	49,000 23	141,000 490	

That is in similar good seasons (when such works are least required). The Revenue lately was 23 per Cent. higher, and the Exports 490 per Cent. higher than before the Works.

Comparison of the years 1841—2 *and* 1857—8.

Years.	Price of Rice per ton.	Revenue.	Exports of Produce.	Collector's Remarks on the Seasons.
		£	£	
1841–2	£3—3*s*.	210,000	29,000	Seasonable weather Abundant Crops, but large Imports of grain from Arracan.
1857–8	4—7	275,000	280,000	Scanty rains.
	Increase or per Cent.	65,000 32	251,000 870	

That is in a year of scanty rain, the Revenue is now 33 per Cent. higher, and the Exports of produce 870 fold greater than in an abundant season before the Works.

RESULTS OF THE GODAVERY WORKS.

Effects in Rajahmundry.

	Lacs.
Former average Revenue ...	19½
Estimated Revenue this year	32
Increase	12½
Or per cent.	64

Uncollected water rates.

Mr. Dykes states, p. 82, the average water rate levied in the 8 villages he examined was 13¾ Annas. The Engineer's estimate of lands irrigated is 7,00,000 acres, of which in Rajahmundry about 500,000 acres. Water rates fixed by Government 3 Rs. for 1 crop and 4 for two.

	Rs.	
Rate ordered...	3	for one crop.
Mr. Dykes' average ...	0 13¾	Annas.
Uncollected ...	2 2¼	„
	500,000	Acres.
Total do. on one crop ...	11	Lacs.
Add for 100,000 acres of a second crop.	1	„
Uncollected ...	12	Lacs.
Collected ...	9½	
Total...	21½	Lacs.

or, on the old Revenue, 110 per cent.; that is, if the whole water rate were levied (a very light one), the Revenues would now be 41 lacs, or 110 per cent. above the former.

Again, from want of minor works, 300,000 acres remain unirrigated in Rajahmundry, which, as one crop land would add 9 lacs, and if only 100,000 more is cultivated for 2 crops, 1 lac more would be added, or in all, 51 lacs a year, 160 per cent. addition to the old Revenue, with a rapidly increasing extra Revenue.

The actual present increase is 64 per cent., while an average increase of 10 per cent. on all the Districts of India, would restore the balance of the finances, and yet every body, almost, appears to be still wondering by what possible means the necessary expenditure of the State can be provided for.

Total returns for Capital.

Actual increase in Rajahmundry	12½	Lacs.
Do. in Masulipatam, perhaps	2	„
Total... ...	14½	
Deduct for repairs, &c., management	2	
Net	12½	
Total expenditure on new works, about	40	Lacs.
Present profit ...	31	per cent.
Add 2⅙ Rupees uncollected water rate on 700,000 acres	15	Lacs.
Do. 1 Rupee on 100,000 acres 2nd crop ...	1	
	16	
Now Collected ...	12½	
Total ...	38½	
or on Capital...	95	per cent.

And when the remaining lands are irrigated, the returns would not be less than 150 per cent. with still increasing extra taxes. With the exception of a very small portion, all this is the fruit of the works, directly or indirectly. But the simplest way of stating the case is this, that Rajahmundry is now paying a Revenue 64 per cent. higher than before the works, while the former Revenue was paid with the greatest difficulty, and the present with the greatest ease.

Benefits to the People.

The Exports for 58·9 were 34 lacs higher than the average before the works (40 Lacs against 6 Lacs), or, allowing 25 per cent. for real value above Custom house valuation, above 42 lacs, *a clear* *increase of income*, 10 *lacs above the whole Revenue of the District;* this is, besides all the great increase of consumption of their produce within the district, and any increased sales by land; also besides the saving in the cost of carriage by water, instead of land.

Again, the increase of produce cannot be less than 15 Rs. an acre, which, on 7 lacs of acres, would be 105 Lacs, besides the saving in carriage.

Again, the estimated traffic for 58-9 on the principal Canal, is not less than 1,80,000 Tons, against about 5,000 in 1851-52.

COMPARATIVE POSITION OF RAJAHMUNDRY AMONG THE DISTRICTS OF MADRAS IN POINT OF REVENUE, BEFORE THE GODAVERY WORKS, AND AT THE PRESENT TIME.

Average Revenue of the 5 *years from* 1840-41 *to* 1844-45.

		Rs.
1.	Tanjore,	47,40,000
2.	Canara,	32,10,000
3.	Malabar,	31,60,000
4.	Bellary,	32,10,000
5.	Tinnevelly	27,00,000
6.	Coimbatore,	26,60,000
7.	S. Arcot,	26,20,000
8.	Cuddapah,	25,70,000
2.	Nellore,	25,10,000
10.	Madura,	24,30,000
11.	N. Arcot,	24,80,000
12.	Salem,	20,80,000
13.	RAJAHMUNDRY,	20,30,000
14.	Chingleput,	16,60,000
15.	Madras,	17,00,000
16.	Trichinopoly,	15,20,000
17.	Vizagapatam,	14,90,000
18.	Masuliapatam,	13,70,000
19.	Guntoor,	13,10,000
20.	Ganjam,	12,30,000
21.	Kurnool,	8,20,000

Revenue of 57-8 *for the other districts, and estimated Revenue of* 58-9 *for Rajahmundry.*

		Rs.
1.	Tanjore,	56,00,000
2.	Tinnevelly,	36,20,000
3.	RAJAHMUNDRY,	29,75,000
4.	Canara,	28,30,000
5.	Malabar,	27,00,000
6.	Bellary,	25,90,000
7.	S. Arcot,	25,00,000
8.	Cuddapah,	24,80,000
9.	Coimbatore,	25,60,000
10.	Madras,	22,50,000
11.	N. Arcot,	22,10,000
12.	Nellore,	21,80,000
13.	Madura,	20,90,000
14.	Salem,	20,20,000
15.	Guntoor,	20,10,000
16.	Ganjam,	17,90,000
17.	Vizagapatam,	16,10,000
18.	Masuliapatam,	14,60,000
19.	Chingleput,	14,50,000
20.	Trichinopoly,	14,20,000
21.	Kurnool,	8,60,000

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